



TANGANYIKA TERRITORY

Annual Medical and Sanitary Report

For year ending 31st December

1932

Including the Annual Report of
the Medical Laboratory,
Dar es Salaam

1934

DAR ES SALAAM

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OFFICE OF THE
DIRECTOR OF MEDICAL AND SANITARY SERVICES,
DAR ES SALAAM,
TANGANYIKA TERRITORY.
23rd November, 1933.

Sir,

I have the honour to submit, for the information of His Excellency the Governor and for transmission to the Right Honourable the Secretary of State for the Colonies, the Medical Report on the health and sanitary condition of the Tanganyika Territory for the year 1932, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

A. H. OWEN,

Director of Medical and Sanitary Services.

THE HONOURABLE

THE CHIEF SECRETARY TO THE GOVERNMENT,

DAR ES SALAAM.

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TANGANYIKA TERRITORY.

Annual Medical Report for 1932.

SECTION I.—ADMINISTRATION.

(a) Staff. *European*:

Director of Medical and Sanitary Services.	2 Senior Health Visitors.
Deputy Director of Medical Service.	8 Health Visitors.
Deputy Director of Sanitary Service.	27 Nursing Sisters.
Deputy Director of Laboratory Service.	1 Laboratory Assistant.
5 Senior Medical Officers.	1 Chief Clerk.
4 Senior Health Officers.	2 Clerks.
1 Sleeping Sickness Officer.	1 Storekeeper.
42 Medical Officers.	2 Assistant Storekeepers.
1 Senior Dental Surgeon.	1 Medical Instructor.
1 Dental Surgeon.	1 Assistant Medical Instructor.
1 Assistant Bacteriologist.	Superintendent and Matron, Mental Hospital.
1 Entomologist.	1 Senior Sanitary Superintendent.
1 Analytical Chemist.	17 Sanitary Superintendents.
1 Matron.	1 Dental Mechanic.
4 Senior Nursing Sisters.	

Asiatic:

1 Assistant Surgeon.	2 1st Grade Clerks.
3 Senior Sub-Assistant Surgeons.	5 2nd Grade Clerks.
51 Sub-Assistant Surgeons.	13 3rd Grade Clerks.
28 Compounders.	1 4th Grade Clerk.
1 Special Grade Clerk.	

African:

17 Clerks.	Hospital Orderlies, Nurses and Menials: average number employed 760.
83 Dispensers.	Sanitary Labourers: average number employed 1,100.
159 Sanitary Inspectors.	7 Motor Drivers.
2 Vaccinators.	

APPOINTMENTS.

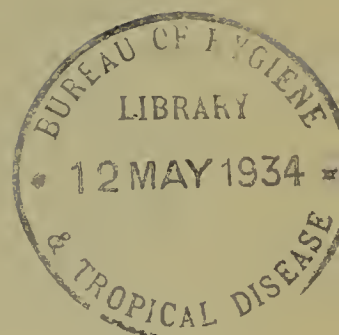
European:

Miss M. A. Bulmer to be a Nursing Sister from	12th February.
Miss M. A. Shelton " " "	12th February.
Miss G. M. Ridley " " "	25th February.

ACTING APPOINTMENTS.

European:

Dr. A. McA. Blackwood, Acting Deputy Director of Medical Service from	29th May to 30th October.
Dr. H. J. O'D. Burke-Gaffney, Acting Deputy Director of Laboratory Service from	17th August to end of the year.



Dr. R. Bury, Acting Director of Medical and Sanitary Services from 14th March to 3rd November.

Dr. J. J. B. Edmond, Acting Sleeping Sickness Officer from 1st March to 24th September.

Dr. D. V. Latham, Acting Senior Medical Officer from 23rd October to the end of the year.

Dr. A. R. Lester, Acting Senior Medical Officer from 9th June to the end of the year.

Dr. C. F. Shelton, Acting Senior Medical Officer from 30th March to 19th November.

Dr. F. R. Lockhart, Acting Senior Medical Officer from 14th March to 22nd October.

Dr. G. R. C. Wilson, Acting Deputy Director of Medical Service from 14th March to 29th May.

Mr. N. McL. Moore, Acting Chief Clerk from 29th March to 19th November.

Asiatic: Nil.

PROMOTIONS.

European:

Dr. A. H. Owen, Director of Medical and Sanitary Services, 2nd January.

Dr. R. R. Scott, M.C., Deputy Director of Sanitary Service, 2nd January.

Asiatic: Nil.

RETIREMENTS.

European:

Dr. J. O. Shircore, C.M.G., 1st January.

Dr. C. L. Ievers, 25th June.

Dr. P. A. Clearkin, 13th November.

Miss E. Bishop, 17th August.

Mr. W. A. Moore, 31st March.

Asiatic: Nil.

TRANSFERS.

European: Nil.

Asiatic: Nil.

RESIGNATIONS.

European:

Miss O. M. Cox, 7th July.

Miss I. McKenzie, 28th June.

Miss J. H. Hood, 4th February.

Mr. J. W. McHardy, 18th November.

Mrs. M. H. Harvey (*nee* Dr. M. H. Clarke), 7th August.

Miss H. M. Barr, 28th October.

Miss M. A. Fraser, 16th September.

Mr. J. E. Miller, 21st December.

Asiatic: Nil.

APPOINTMENTS TERMINATED.

European: Nil.

Asiatic: Nil.

RETRENCHMENTS.

European:

3 Medical Officers.

1 Nursing Sister.

1 Senior Sanitary Superintendent.

2 Sanitary Superintendents.

Asiatic:

9 Sub-Assistant Surgeons.
 6 Compounders.
 2 Sanitary Inspectors.
 1 Motor Mechanic.
 1 Goan Cook.

DEATHS.

European: Nil.*Asiatic:*

Mr. S. Samuel (1st Grade Clerk), 27th January.

INVALIDINGS.

European: Nil.*Asiatic:* Nil.**(b) Legislation.**

The following Ordinances, Rules and Regulations under Ordinances affecting public health were enacted during the year:—

Amendment to Ports Ordinance, 1932.

The Dangerous Drugs (Amendment) Ordinance, 1932, to be read as one with the Dangerous Drugs Ordinance, 1928.

Amendment to Township Ordinance, 1932.

Institution of Suits for Recovery of Hospital Fees, etc. by Officers of Medical Department.

Samuel Muller vested with Medical Officer's powers and duties incident to the operation of Indian Lunacy Act, 1912.

(c) Financial.

							£
Revenue	...	...	...	...	...	...	13,179
Expenditure	...	...	...	...	...	...	187,493

(See also Table II).

Special Expenditure.

Funds have been provided from the Colonial Development Fund for special Malaria Research and Tuberculosis Investigation; during the year the sum of £6,343 was expended in respect of the former and £1,038 on account of the latter.

SECTION II:—PUBLIC HEALTH.

(a) General Remarks.

Expenditure.

The sum of £229,014 was provided in the approved estimates for the full financial year 1932-33 for Medical and Sanitation Services, a decrease of £31,006 on the provision for the previous year. A large proportion of this reduction is apparent rather than real. Expenditure on Malaria Research and Tuberculosis Investigation is paid from Colonial Development Fund at a cost of £12,000. The closure of the Kahama Special Investigation and the transfer of *Trypanosoma rhodesiense* research to sleeping sickness expenditure has resulted in a saving of £6,700 while the sum of £4,240 previously shown in the Medical estimates for the sanitation of Dar es Salaam now appears under a different heading "Township Authority, Dar es Salaam".

Assistance to Medical Missions.

Medical missions do not receive grants-in-aid for the maintenance of general hospitals and dispensaries controlled by them. In certain cases where Government medical services are not available, fees for attendance on Government patients are paid to the missions. Assistance in the form of specific drugs and equipment is also given when campaigns against diseases such as ankylostomiasis, leprosy, sleeping sickness, etc., are being undertaken. During 1932 contributions totalling £1,262 10s. were made to the Church Missionary Society and £300 to the Africa Inland Mission.

The missions render the greatest assistance to the Government in controlling settlements for lepers in the vicinity of mission stations. Allocations from the money provided in the Medical estimates for the maintenance of leprosy patients are made to Provincial Commissioners who, so far as funds allow, assist the missions to support the settlements.

Economies Effected.

The financial position made it imperative that every economy should be effected. In spite of the reduction of expenditure essential medical services were maintained during the year and the number of patients treated at government hospitals increased by 53,711. No medical station was closed while a new dispensary, under the charge of a Sub-Assistant Surgeon was opened at Korogwe on the Tanga line. Savings were mainly effected by not filling senior posts as they became vacant and by not replacing casualties amongst the staff. Further reductions were made in the numbers of African Sanitary Inspectors and the salaries of those who have not passed all their examinations were reduced.

Hospitals and Dispensaries.

As stated in last year's report it was not possible to proceed with the building of a new Asiatic and Native Hospital at Dar es Salaam. It was fortunate that a large building, situated alongside the Sewa Hadji Hospital and previously used as a store by the Public Works Department, became vacant. £4,500 was expended on alterations to this building and in the construction of new wards and improvements to the main hospital. The result has been most successful and the comfort and convenience of both patients and staff have been so greatly increased that the erection of a new native hospital at Dar es Salaam is no longer regarded as a necessity. The Native Authorities at Musoma built a new native hospital at a cost of £2,000. At Arusha £830 was spent on improvements to the native hospital while the new leprosy treatment centre at Mkalama was completed at a cost of £643.

Attendance at Hospitals.

There was a decrease of 2,493 in the number of in-patients admitted to hospital and an increase of 56,348 in the number of out-patients treated at government hospitals, the figures for the last six years are as follows:—

Year	In-Patients	Out-Patients	Total
1927	27,819 ...	261,899 ...	289,718
1928	31,589 ...	356,106 ...	387,695
1929	33,470 ...	360,001 ...	393,471
1930	33,052 ...	393,783 ...	426,835
1931	31,743 ...	423,169 ...	454,912
1932	29,250 ...	479,517 ...	508,767

Maternity and Child Welfare.

Maternity and child welfare centres are maintained both by the Government and by missionary societies. The financial assistance given to the latter has already been mentioned.

The figures for all clinics during the last six years are given below:—

	1927	1928	1929	1930	1931	1932
Total number of confinements admitted to clinics	507	1,645	2,521	2,399	2,710	2,344
Total number of confinements attended to elsewhere	114	167	55	49	499	190
Total number of new cases (in- and out-patients) seen at clinics—						
Mothers	10,736	16,686	28,858	24,569	30,558	35,283
Children	16,519	24,870	38,682	31,553	45,418	46,806
Total number of attendances at clinics—						
Mothers	27,745	74,349	148,006	164,833	251,704	273,763
Children	36,725	90,747	197,021	219,133	352,155	454,401

Native Dispensers.

At the end of the year, 96 trained African Dispensers were employed by the Medical Department. Some of these are used as medical assistants in the larger hospitals, while those with the longest experience are placed in charge of small dispensaries which act as outposts to the district hospitals. Six new candidates were under training during the year. The improvements to the native hospital at Dar es Salaam (Sewa Hadji) have provided class-rooms where theoretical work can be carried on, combined with practical instruction in the wards and out-patient departments of the hospital. A refresher course extending over a period of six months was held during the year and twelve trained men were withdrawn from their stations to attend. The course was a thorough one, special courses of lectures being given by various members of the staff of the Medical Department, including the Acting Deputy Director of Sanitary Service on hygiene, the Acting Deputy Director of Laboratory Service on laboratory methods, the Malaria Research Officer on malaria and mosquitoes, the Matron on simple hospital administration and the nursing of patients; the staff of the hospital also lectured and gave practical instruction in elementary surgery, medicine and anæsthetics. Lectures and practical instruction in the extraction of teeth were given by the Senior Government Dental Surgeon. In addition to these lectures and demonstrations, revision classes were held in subjects such as pharmacology and therapeutics, the giving of injections both intramuscular and intravenous, microscopical examinations, the treatment of yaws, and the preparation of the Government returns required in their work.

In order to reduce the cost of printing details of the syllabus are not given but the information is available if required.

Native Dispensaries.

The Native Administrations continue to take great interest in the tribal dispensaries which are controlled and financed by them. Wherever funds permit, the staff provided is in excess of the number of dispensaries thus making it possible for one or more tribal dressers to be always at the nearest Government hospital undergoing a refresher course. Arrangements are at present being made to enable District medical officers to exercise closer supervision over the dispensaries than has been possible in the past. In addition in those areas where human trypanosomiasis exists or may be expected to occur additional training is being given to selected Tribal Dressers. This training is mainly devoted to enable the dresser to detect the clinical signs of sleeping sickness and to take blood slides and where necessary undertake treatment. Certain of these dressers will be provided with "Kima" microscopes and will be capable of carrying out ordinary blood examinations.

The attendances during the year were 374,614, an increase of 4,879 over 1931.

The figures for the last five years are as follows:—

1928	...	...	...	...	...	141,300
1929	...	...	...	...	...	190,545
1930	...	...	...	...	...	352,423
1931	...	...	...	...	...	369,735
1932	...	...	...	...	...	374,614

Particulars of the number of dispensaries open during 1932 and of the new ones to be built in 1933 are given in the following table:—

Number of Tribal Dispensaries by Provinces.

Province				Number open during 1932	Number to be opened 1933
Central ...	...	...	...	23	1
Eastern...	...	...	...	30	1
Iringa ...	...	...	...	40	—
Lake ...	...	...	...	86	17*
Lindi ...	...	...	...	48	2
Northern	...	...	...	13	1
Tanga ...	...	...	...	27	—
Western	...	...	...	29	—
TOTALS				296	22=318

*One to be rebuilt.

Tuberculosis.

The tuberculosis unit on Kilimanjaro with headquarters at Kibongoto and sub-stations on the slopes of the mountain continued its work throughout the year. This unit carried out constant treatment and educative measures for the prevention of the spread of infection among the Wachagga at the special Tuberculosis Hospital at Kibongoto, staffed by a medical officer, an Asiatic compounder and three dispensers and its branch dispensaries, while similar work was done by the general hospital at Moshi, at which there is a medical officer and two sub-assistant surgeons, by the tribal dispensaries under the native authorities, by the Medical Officer of Health of the Northern Province whose headquarters are at Moshi, with six African sanitary inspectors, especially in connection with the improvement of housing and sanitation in the villages, and by the Tuberculosis Research Officer himself. A pamphlet in English was prepared, based on the findings of the latter officer, and was circulated in August, 1932, to all government departments, missions, schools, and persons interested in the care of natives and labour throughout the Territory. A circular in technical language was issued to all medical practitioners and administrative officers stating the findings to date and recommending that a careful watch should be kept for cases of the disease, while an illustrated pamphlet in Swahili with posters

has been printed and issued to all schools, missions, medical stations and native authorities, describing the dangers of the condition and the steps to be taken to avoid catching or spreading the disease. This pamphlet will also appear in serial form in *Mambo Leo*, the monthly Swahili publication. Since the special tuberculosis investigation was begun, information has also been collected regarding the incidence of the disease in other parts of the Territory and it has been found to be more widespread than had been realized. The extension of this investigation to other areas is, therefore, most desirable in order to ensure that the policy for the control of tuberculosis may be based upon accurate knowledge of the disease in all parts of the Territory where it occurs. A further free grant of £3,833 from the Colonial Development Fund spread over the next two years was asked for in order that the work should be continued and this request has been granted. In particular other highland areas such as Tukuyu, parts of the Kigoma District, and Kondoa-Irangi will be examined.

Venereal Diseases and Yaws.

Treatment by injection continues to be popular; 35,229 cases of syphilis and 114,115 cases of yaws were treated throughout the year.

The figures for the last eight years are as follows:—

					Syphilis		Yaws
1925	...	...	...	...	11,288	...	74,638
1926	...	...	...	...	17,751	...	96,624
1927	...	...	...	...	20,804	...	120,263
1928	...	...	...	...	24,367	...	127,439
1929	...	...	...	...	25,752	...	126,328
1930	...	...	...	...	25,864	...	137,112
1931	...	...	...	...	29,662	...	112,128
1932	...	...	...	...	35,229	...	114,115

Health of Prisoners.

The general health of the prisoners throughout the Territory was satisfactory. The death rate per 1,000 shows a decrease of 0·90.

The figures for the last eight years are as follows:—

				Number of deaths		Daily average number of prisoners during the year		Death per 1,000 to average number of prisoners
1925	...	...	...	59	...	1,732·12	...	34·00
1926	...	...	...	60	...	1,858·80	...	32·20
1927	...	...	...	32	...	1,695·91	...	18·80
1928	...	...	...	49	...	1,826·50	...	26·83
1929	...	...	...	23	...	1,905·10	...	12·07
1930	...	...	...	48	...	2,106·10	...	22·79
1931	...	...	...	59	...	2,370·00	...	24·89
1932	...	...	...	58	...	2,417·00	...	23·99

Sanitation.

In spite of the reduction in the vote for sanitary labour essential public services have been maintained in the principal townships of the Territory, although it has not been possible to devote as much attention as usual to grass cutting, bush clearing, etc. The report of the consulting engineers on the drainage and sewerage of Dar es Salaam and Tanga was received early in the year. The sum required to carry out the whole scheme is large, and is unlikely to be available in the near future.

The Minor Settlements Ordinance was enacted to provide local sanitary authorities with powers for the sanitary control of the smaller trading centres, which are not important enough to be gazetted townships. The delineation of these "minor settlements" was completed in 1932 in every province except one, and the appointment of sanitary authorities was in progress.

The economic depression has greatly reduced the number of labourers employed on the sisal estates, particularly those imported from the south-western area of the Territory; the health of the labourers generally has been satisfactory.

Infectious Diseases.

With the exception of smallpox in one area of the Territory no serious outbreak of infectious disease was reported during the year.

Smallpox.

Smallpox continued to occur in the Iringa, Njombe, Rungwe and Mbeya Districts of the Iringa Province and in the contiguous part of southern Tabora. The disease was not of a virulent type, 48 deaths occurring amongst the 742 cases reported. From the remainder of the Territory only 26 cases were notified.

Plague.

Only two districts were affected during the year. Two cases were reported from the endemic area round Mbulu and ten (not bacteriologically confirmed) from Shinyanga where an epidemic had occurred in 1931.

Influenza.

No serious epidemic occurred, thirty deaths were reported during the year as being due to this disease.

The following table shows the incidence of dangerous infectious diseases since 1925:—

Year	Smallpox		Cerebro-spinal Meningitis		Plague		Influenza	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1925	1,388	466	6	3	44	27	692	64
1926	22	—	8	4	6	6	1,552	209
1927	84	8	7	6	13	10	—	—
1928	26	—	7	3	43	42	540	8
1929	178	22	10	6	—	—	33	—
1930	4,335	734	6	3	15	15	56	—
1931	1,733	148	4	2	238	172	1,568	22
1932	768	48	7	1	12	10	123	30

Leprosy.

There has been no alteration in the policy of encouraging early cases to come for treatment by the establishment of treatment centres and the abolition of compulsory segregation. The Government is deeply indebted to the missionary societies and to the British Empire Leprosy Relief Association for assistance in dealing with this disease.

Trypanosomiasis.

One new focus of infection was discovered in Mkalama District, but the affected area is circumscribed and it is unlikely that there will be any serious spread. The villages affected have been evacuated, and the people moved to open country. There has been no serious spread elsewhere, but in the Western and Lake Provinces the number of cases has increased in some of the old foci. The policy of concentration referred to in previous reports is still adhered to, and Bayer 205 and tryparsamide are still found to be the most suitable drugs.

Research work on *Trypanosoma rhodesiense* at the Research Laboratory at Tinde was continued and the results published in various scientific journals.

The provinces of the Territory were re-grouped during the year, and in the affected provinces as now constituted the number of cases and deaths during the last five years are shown in the following table:—

Provinces	New cases diagnosed during the year					Deaths				
	1928	1929	1930	1931	1932	1928	1929	1930	1931	1932
Lake	172	143	228	138	605	69	53	65	64	89
Western	1,548	3,111	1,513	1,304	2,251	295	520	442	477	385
Central	6	—	—	—	—	—	—	—	—	—
Eastern	—	—	1	—	—	—	—	—	—	—
Lindi	25	8	5	—	5	31	7	3	3	3
Northern	—	—	3	—	—	—	—	—	—	—
TOTAL	1,751	3,262	1,750	1,442	2,861	395	580	510	544	477

The Enteric Group.

Fifty-three cases were treated with seven deaths.

Relapsing Fever.

Six hundred and sixty-four cases with nine deaths were reported.

Malaria.

Thirty-two thousand two hundred and forty-five cases of all types excluding blackwater fever were treated with a mortality of fifty-three.

Blackwater Fever.

Ninety-eight cases with twenty-five deaths were reported during the year.

Dysentery.

One thousand two hundred and eighty-nine cases were treated in government hospitals of which seven hundred and ninety-four were Amœbic and one hundred and sixteen Bacillary. The total deaths were twenty-four of which fifteen were Amœbic and five Bacillary.

Yaws.

Eighty-three thousand six hundred and eleven cases with four deaths were reported from government hospitals and dispensaries.

Syphilis.

Twenty-three thousand five hundred and forty cases of all types were treated and sixteen deaths were attributed to this disease.

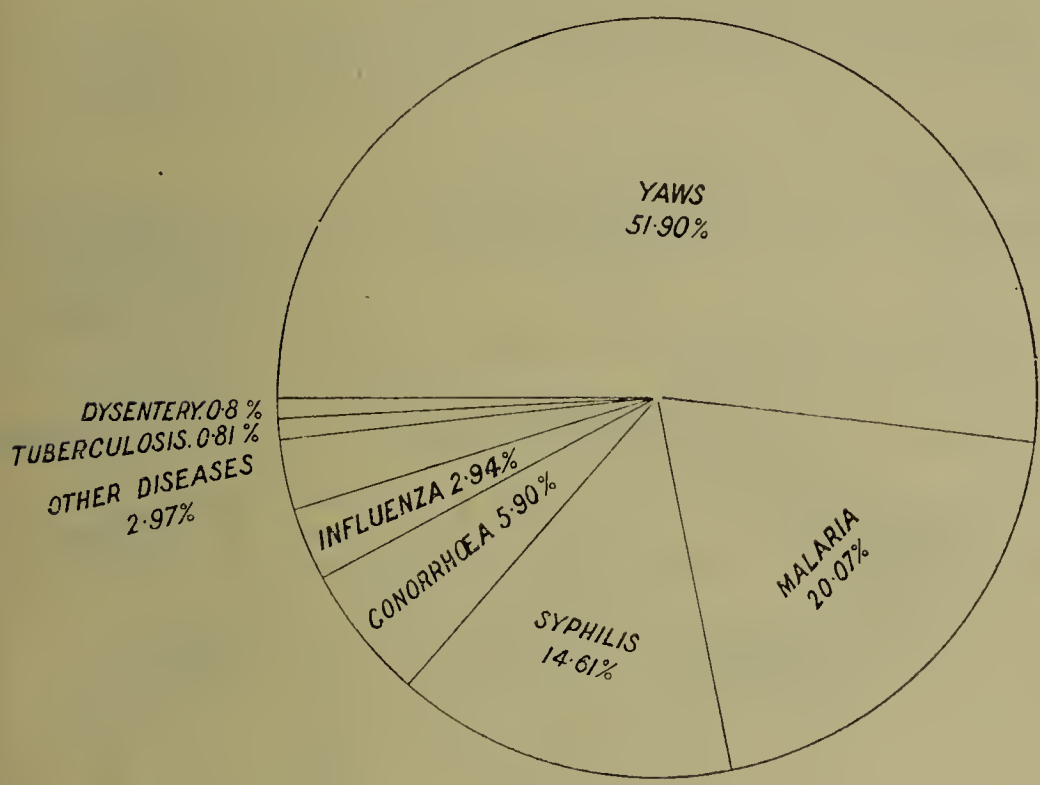
Gonorrhoea.

Nine thousand five hundred and nine patients suffered from this disease with seven deaths.

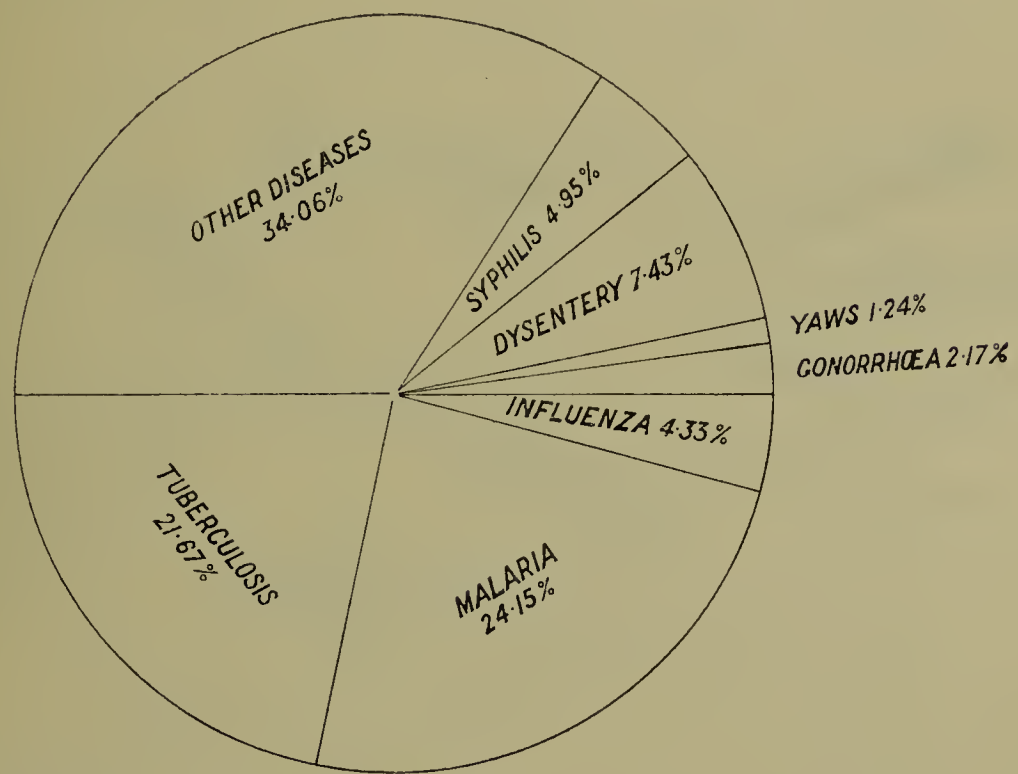
TABLE SHOWING TOTAL CASES, PERCENTAGES OF GROUPS TO TOTAL CASES TREATED, DEATHS AND PERCENTAGE OF DEATHS TO TOTAL NUMBER OF DEATHS.

	Cases			Deaths			Percentage to total number of cases treated			Percentage of deaths to total number of deaths		
	1930	1931	1932	1930	1931	1932	1930	1931	1932	1930	1931	1932
Epidemic, endemic and infectious diseases	148,685	148,519	161,122	431	338	323	34.69	32.53	31.58	28.26	26.55	27.42
General diseases	5,959	6,925	6,861	36	43	44	1.39	1.52	1.34	2.36	3.38	3.74
Diseases of the nervous system ...	2,382	2,320	1,786	37	39	35	0.56	0.51	0.35	2.42	3.06	2.97
" organs of vision ...	21,093	23,546	25,206	2	1	1	4.92	5.16	4.94	0.13	0.08	0.09
" ear and mastoid sinus ...	6,682	7,574	8,066	3	—	2	1.56	1.66	1.58	0.19	—	0.17
" circulatory system ...	1,251	1,750	1,959	27	20	24	0.29	0.38	0.38	1.77	1.57	2.04
Acute and chronic bronchitis ...	36,396	34,536	33,146	27	11	7	8.49	7.56	6.49	1.77	0.86	0.59
Lobar and broncho-pneumonia ...	1,384	1,543	1,408	209	191	201	0.32	0.34	0.28	13.71	15.00	17.06
Other diseases of the respiratory system	8,284	15,869	17,039	18	17	27	1.93	3.48	3.34	1.18	1.34	2.29
Caries and pyorrhea	9,518	12,533	13,612	1	2	2	2.22	2.75	2.67	0.07	0.16	0.17
Diarrhoea and enteritis	6,636	10,191	9,442	113	56	35	1.55	2.23	1.85	7.41	4.40	2.97
Ankylostomiasis	9,375	9,676	16,629	193	186	120	2.19	2.12	3.26	12.66	14.61	10.19
Other diseases of the digestive system	61,966	63,557	74,331	81	72	72	14.46	13.92	14.57	5.31	5.66	6.11
Diseases of the genito-urinary system	5,445	7,133	7,280	41	49	46	1.27	1.56	1.43	2.69	3.85	3.91
Ulcers... ..	28,345	31,273	42,111	31	18	24	6.61	6.85	8.25	2.03	1.41	2.04
Scabies	10,193	10,785	15,240	2	—	—	2.38	2.36	2.99	0.13	—	—
Other diseases of skin and cellular tissue	14,581	14,802	17,410	41	36	37	3.40	3.24	3.41	2.69	2.83	3.14
Diseases of bones and organs of locomotion	9,287	9,379	11,135	10	9	7	2.17	2.05	2.18	0.66	0.71	0.59
Affections produced by external causes	33,422	33,491	33,517	115	109	101	7.80	7.34	6.57	7.54	8.56	8.57
Ill-defined and other diseases ...	7,709	11,155	12,968	107	76	70	1.80	2.44	2.54	7.02	5.97	5.94
	428,593	456,557	510,268	1,525	1,273	1,178	100.00	100.00	100.00	100.00	100.00	100.00

Proportion in percentages of Epidemic and Infectious Diseases, In-and out-patients, treated at Hospitals and Dispensaries.

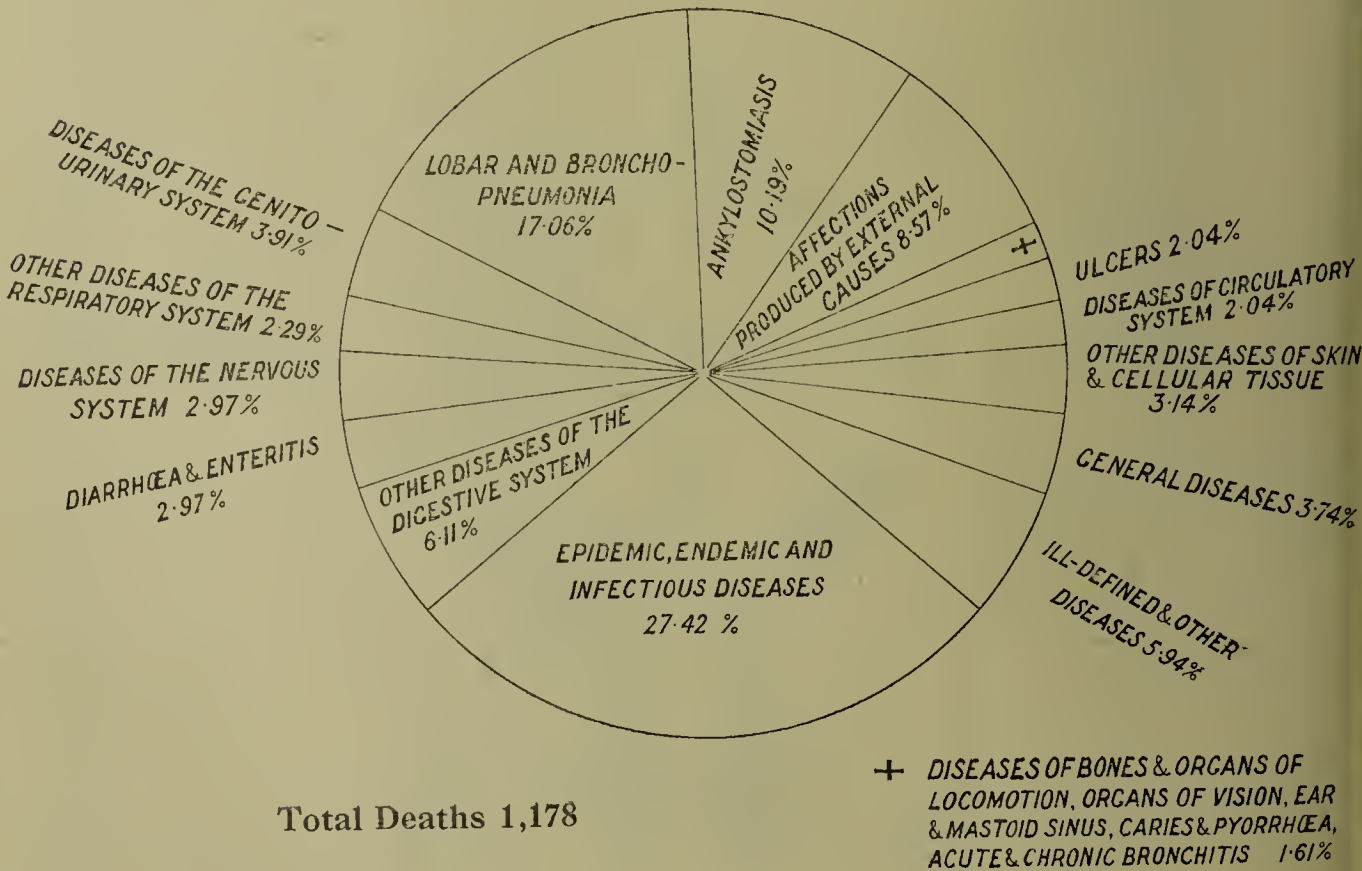
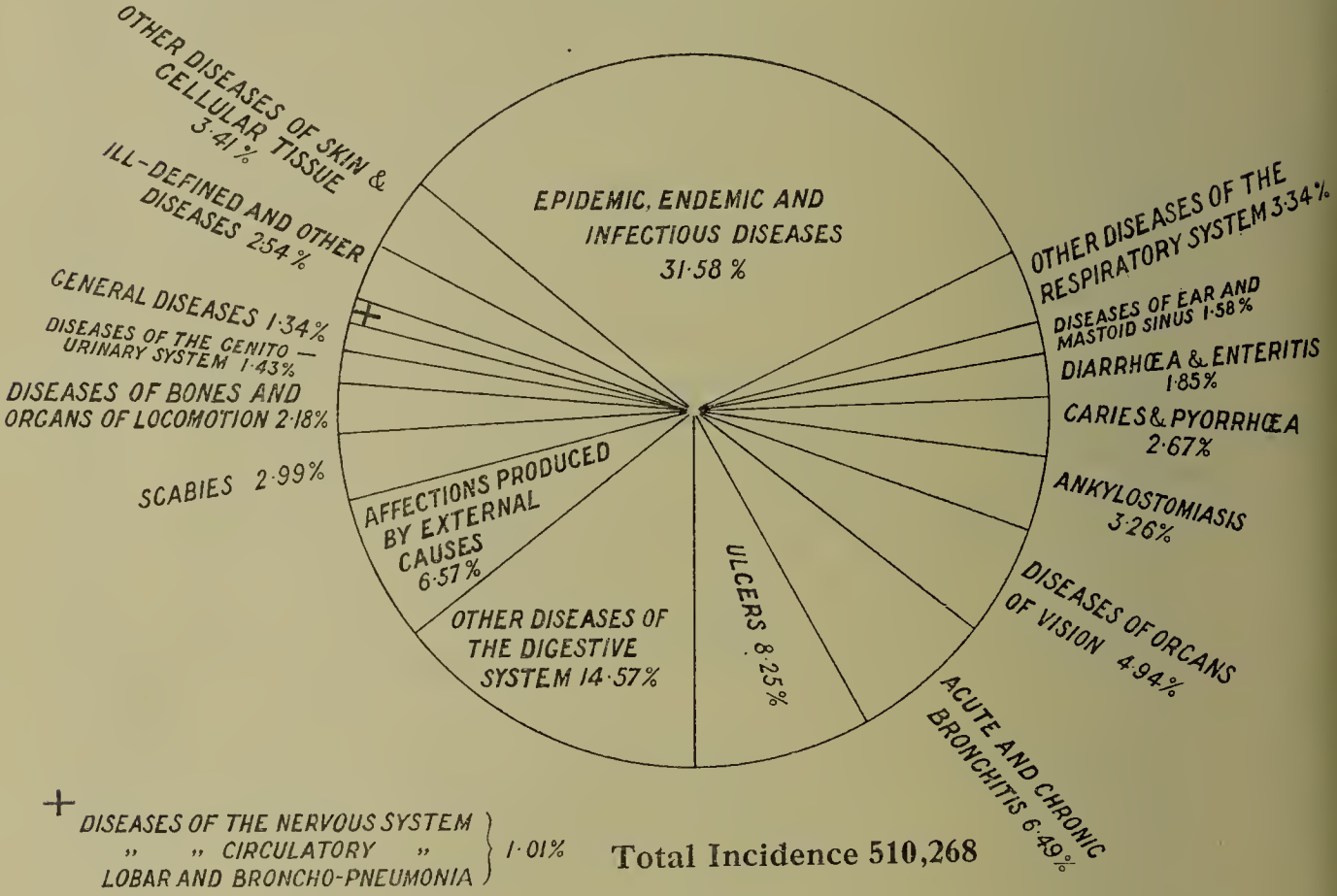


Total Incidence 161,122.



Total Deaths 323.

Proportion of Epidemic, Endemic, Systemic and other diseases shown as percentages of Total Cases treated at Hospitals and Dispensaries.



(b) Vital Statistics.

(1) GENERAL NATIVE POPULATION.

The most recent estimate of the population of the Territory is computed at 5,022,640. No reliable statistics relating to birth, death and infant mortality rates are available at present.

(2) GENERAL EUROPEAN POPULATION.

Acknowledgment is made to the Registrar General of Births and Deaths for a return of the registered deaths, a total of sixty-eight, which are summarized as follows:—

CAUSES OF DEATHS OF EUROPEANS DURING 1932.

(Classified according to the Manual of the International List of Causes of Deaths, 1926.)

I.	Infectious and Parasitic Diseases	...	...	...	26
II.	Cancer and other Tumours	...	...	...	5
III.	Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases	...	...	...	2
IV.	Diseases of the Blood and Blood-forming Organs	...	...	...	1
VI.	Diseases of the Nervous and Sense Organs	...	...	...	1
VII.	Diseases of the Circulatory System	...	...	...	2
VIII.	Diseases of the Respiratory System	...	...	...	5
IX.	Diseases of the Digestive System	...	...	...	6
X.	Non-venereal Diseases of the Genito-Urinary System and Annexa	...	...	...	5
XI.	Diseases of Pregnancy, Childbirth and the Puerperal State	...	...	...	1
XV.	Diseases of Early Infancy	...	...	...	4
XVI.	Old Age	...	...	...	1
XVII.	Deaths from Violence	...	...	...	4
XVIII.	Ill-defined Diseases	...	...	...	5
TOTAL					68

EUROPEAN OFFICIALS.

Deaths.—There were three deaths among European officials, two being due to diseases and one to accident.

	1930	1931	1932
Accident—killed while hunting	2	1	—
Suicide	—	1	—
Accident—drowned while bathing	1	—	—
Cellulitis of face and general septicæmia	1	—	—
Tuberculosis (pulmonary)	1	—	—
Myocardial degeneration	—	1	—
Blackwater fever	—	1	1
Chronic appendicitis	—	—	1
Accident—gunshot	—	—	1
TOTAL	5	4	3

Invalidings.—Six European officials were invalided during the year as compared with eleven and nine during the two preceding years.

	1930	1931	1932
Alcoholism	1	—	—
Tuberculosis	1	—	2
Neurasthenia	2	3	—
Pyelitis	1	—	—
Heart disease	—	1	—
Malignant tumour	1	—	—
Gastro enteritis	1	—	—
General debility	1	—	—
Fracture of the left wrist	1	—	—
Gastric ulcer	1	—	—
Deafness	1	—	—
Chronic inflammation of maxillary antrum	—	1	—
Eczema	—	1	—
Carcinoma of œsophagus	—	1*	—
Chronic dysentery	—	1	—
Delusions	—	1	—
Malaria and blackwater	—	—	1
Insomnia	—	—	1
Septicæmia	—	—	1
Auricular fibrillation	—	—	1
TOTAL ...	11	9	6

*Subsequently died in England.

ASIATIC OFFICIALS.

Deaths.—There were three deaths among Asiatic officials all due to diseases.

	1930	1931	1932
Blackwater fever	3	5	3
Pneumonia	—	1	—
Heart failure	1	1	—
Perinephritic abscess	1	—	—
Chronic interstitial nephritis and mitral endocarditis	—	1	—
Typhoid	—	1	—
Tuberculosis (pulmonary)	—	1	—
TOTAL ...	5	10	3

Invalidings.—Eight Asiatic officials were invalided during the year.

	1930	1931	1932
Pulmonary tuberculosis	2	5	1
Chronic asthma	1	1	—
Chronic bronchitis	—	1	—
Asthmatic bronchitis	2	—	1
General debility and premature senility	—	1	1
Epilepsy	1	1	—
Chronic otitis media	1	—	—
Chronic rheumatism	1	1	—
Fracture of femur	1	—	—
Hemiplegia	1	—	—
Cerebral lesion	1	—	—
Gastritis	—	1	—
Neurasthenia	—	2	—
Glycosuria and eczema of leg	—	1	—
Alcoholism	—	1	—
Chronic dysentery	—	1	—
Chronic appendicitis	—	—	1
Blackwater and malaria	—	—	1
Colic and jaundice	—	—	1
Mental derangement	—	—	1
Myopia and chronic trachoma	—	—	1
TOTAL ...	11	16	8

SICK, INVALIDINGS AND DEATH RATES, EUROPEAN OFFICIALS, 1930, 1931 AND 1932.
(For the three Principal Towns and the whole Territory).

	Dar es Salaam			Tabora			Tanga			Whole Territory		
	1930	1931	1932	1930	1931	1932	1930	1931	1932	1930	1931	1932
1. Total number of officials resident	530	498	447	159	144	111	82	86	107	1,600	1,567	1,387
2. Average number resident... ..	359	352	314	79	81	60	82	86	56	1,007	988	815
3. Total number on sick list ...	432	444	290	65	77	52	75	102	49	915	993	685
4. Total number of days on sick list	3,303	3,257	2,261	528	486	363	521	628	278	6,475	6,554	4,639
5. Average daily number on sick list	9.05	8.92	6.18	1.45	1.33	0.99	1.43	1.72	0.76	17.74	17.96	12.67
6. Percentage of sick to average number resident	2.52	2.53	1.97	1.84	1.64	1.65	1.74	2.00	1.36	1.76	1.82	1.55
7. Average number of days on sick list for each patient... ..	7.65	7.34	7.80	8.12	6.31	6.98	6.95	6.16	5.67	7.08	6.60	6.77
8. Average sick time to each resident	9.20	9.25	7.20	6.68	6.00	6.05	6.35	7.30	4.96	6.43	6.63	5.69
9. Total number invalided ...	9	9	6	—	—	—	2	—	1	11	9	6
10. Percentage of invalidings to total resident	1.70	1.81	1.34	—	—	—	2.44	—	0.93	0.69	0.57	0.43
11. Total deaths	2	1	2	1	—	—	—	1	1	5	4	3
12. Percentage of deaths to total resident	0.38	0.20	0.45	0.63	—	—	—	1.16	0.93	0.31	0.26	0.22
13. Percentage of deaths to average number resident	0.56	0.28	0.64	1.27	—	—	—	1.16	1.79	0.50	0.40	0.37
14. Number of cases of sickness contracted away from residence	—	—	—	—	—	—	—	—	—	15	18	18

SICK, INVALIDINGS AND DEATH RATES, ASIATIC OFFICIALS, 1930, 1931 AND 1932.
(For the three Principal Towns and the whole Territory).

	Dar es Salaam			Tabora			Tanga			Whole Territory		
	1930	1931	1932	1930	1931	1932	1930	1931	1932	1930	1931	1932
1. Total number of officials resident	1,000	997	802	385	298	146	172	189	176	*2,138	*2,127	*1,653
2. Average number resident ...	828	795	631	185	178	91	172	189	121	*1,558	*1,546	*1,166
3. Total number on sick list ...	966	1,486	664	545	437	101	303	245	139	2,371	2,733	1,255
4. Total number of days on sick list ...	5,496	5,908	3,408	2,042	1,528	340	1,513	1,193	688	11,697	11,152	5,974
5. Average daily number on sick list ...	15.06	16.19	9.31	5.59	4.19	0.93	4.15	3.27	1.88	32.05	30.55	16.32
6. Percentage of sick to average number resident ...	1.82	2.04	1.48	3.02	2.35	1.02	2.41	1.73	1.55	2.06	1.97	1.40
7. Average number of days on sick list for each patient ...	5.69	3.98	5.13	3.75	3.50	3.37	4.99	4.87	4.95	4.93	4.08	4.76
8. Average sick time to each resident	6.64	7.43	5.40	11.04	8.58	3.74	880	631	5.69	7.51	7.21	5.12
9. Total number invalided ...	9	9	6	—	2	—	1	4	2	11	16	8
10. Percentage of invalidings to total resident ...	0.90	0.90	0.75	—	0.67	—	0.58	2.12	1.14	0.51	0.75	0.48
11. Total deaths ...	4	4	3	1	3	—	—	—	—	5	10	3
12. Percentage of deaths to total resident ...	0.40	0.40	0.37	0.26	1.01	—	—	—	—	0.23	0.47	0.18
13. Percentage of deaths to average number resident ...	0.50	0.50	0.48	0.54	1.69	—	—	—	—	0.32	0.65	0.26
14. Number of cases of sickness contracted away from residence	—	—	—	—	—	—	—	—	—	6	12	5

*Approximate only. Accurate figures not available.

SECTION III.—HYGIENE AND SANITATION.

(a) General Measures of Sanitation.

Drainage and Sewerage.—The financial situation has prevented the initiation of any part of the schemes for Dar es Salaam and Tanga prepared by the Consulting Engineers.

Water Supplies.—Weekly bacteriological examinations of the Dar es Salaam supply commenced in August have given most satisfactory results. (Details are given in the Laboratory Report). Excretal *B. Coli*. was never found in 25c.c., the largest quantity examined.

Further boring was undertaken at Tabora and hopes were entertained of great improvement of the supply.

At Tanga a concrete well containing the supply obtained from two additional boreholes was completed and electrically driven pumps of a capacity of 12,000 gallons per hour were installed.

At Dodoma the catchment area was increased by means of a furrow to the Kikuyu river which increased the catchment area by 91 per cent. The capacity of the dam was increased, by raising the spillway, to 33,300,000 gallons.

At Morogoro investigations were carried out with a view to the improvement and unification of the existing three systems.

(b) Measures to Spread the Knowledge of Hygiene and Sanitation.

Revision courses with an extended syllabus were held for African District Sanitary Inspectors at Dar es Salaam, Tanga and Mwanza. The standard of the terminal examinations was high: a pass in this examination means promotion to Grade IV of the African Civil Service and a smaller percentage of candidates than usual succeeded in satisfying the examiners. The two written papers, in Swahili, are set and corrected at headquarters, and the oral examinations are held by an administrative officer and a medical officer who has not been the candidate's teacher. Cognizance is taken of writing, spelling and of the candidate's ability to express himself on paper. The District Inspectorate was reduced during the year to a total of 134.

The areas of the District Inspectors in the Central and Western Provinces and parts of the Lake Province were visited and reported on by one of the more senior Sanitary Superintendents.

The instruction in hygiene given to the Dispensers during their revision course at Dar es Salaam has been systematized and adapted to the special needs of this class of man, who is not required to know much detailed practical sanitation. It has been drawn up with a view to the application of the principles of physiology, which occupy a considerable part of the course, to the prevention of the common diseases of the Territory.

It was not possible to hold a course for Urban Sanitary Inspectors.

Propaganda.—Illustrated posters and a sixteen-page pamphlet in the vernacular on tuberculosis were published and broadcast to all concerned with native welfare.

(c) Special Research undertaken with the assistance of the Colonial Development Fund.

Tuberculosis.—This research continued under Dr. Wilcocks who was awarded the M.D. of Manchester University for his thesis on the subject. This officer has since been awarded a Carnegie Grant to enable him to study tuberculosis problems in Europe, particularly from the bacteriological aspect. The research has shown the importance of determining the pathogenicity of certain acid fast bacilli occurring in the sputum and morphologically resembling tubercle bacilli but not always associated with detectable tuberculosis. During Dr. Wilcocks' absence, no research

work will be undertaken but the clinic is to be kept on under the Medical and Health Officers at Moshi, so that cases under observation and treatment will not be lost sight of.

Malaria.—The work of this unit, more properly described as a survey than as a research unit in the restricted sense, continues at Dar es Salaam where the laboratory was completed in January, and at Tanga. The laboratory at the latter station was completed in February, 1933, and Dr. D. B. Wilson, whose wife (a medical woman) assists him as Entomologist, commenced work there in October. No entomologist has been appointed to the Main Unit at Dar es Salaam, and the staff consisted at the end of the year of the Medical Officer in charge, the Anti-malarial Engineer, a Sanitary Superintendent, and Asiatic and African assistants.

The work in hand at the end of 1932 consists in the determination of parasite rates in the native population of the town which is divided into eight main areas for the purpose: the recording of permanent and adventitious breeding places of anopheline carriers and of their infection rates in the different areas: and the formulation of measures on the most economic lines by the Anti-malarial Engineer to obviate their breeding.

It is most unfortunate that the severe shortage of funds prevents the execution of some of the works already planned: and deprives the unit of the opportunity of testing under local conditions the various methods of dealing with permanent breeding grounds which have been found effective in other parts of the world; and also of obtaining exact estimates of the cost of filling and drainage work with local materials and labour.

A small annual sum of money was provided (£200) under the original grant for experimental work, and this is being carefully husbanded for the purpose, but it is quite insufficient and in any case could not properly be applied to the execution of major works that are actually capital works for the benefit of the township. With help from these funds one useful piece of work was completed in 1932 in filling a dangerous area in Gerezani adjoining the water works with spoil obtained from the new railway cutting and not required for railway purposes.

Experiments are also in hand in connection with the safe dosage of the synthetic anti-malarial drugs, particularly atebrian and plasmoquine: and concurrently with the blood survey enquiries are made regarding the economic condition of the individuals examined.

(d) Recommendations for Future Work.

Works.—The putting in hand of some portion of the drainage and sewerage schemes already designed both for foul water and for malaria prevention must not be lost sight of in the general postponement of public works necessitated at the present time of financial shortage. Enough has already been written to show that capital expenditure on such works will yield a valuable dividend in increased health and comfort for the occupants of the large towns, with a consequent financial return in the shape of increased efficiency of the individual. No computation of the time lost to employers by the absence from duty of wage earners due to malaria alone has yet been made: but there is no doubt that it is excessive, and much of it preventable.

Teaching of Hygiene.—Further experience of the teaching of hygiene (in the widest sense) to the African staff of the department urges the imperative need of more systematic training of the varying classes of native assistant on whom we depend for distributing our medical services to the five million inhabitants of this Territory.

ABSTRACTS FROM THE ANNUAL REPORTS OF THE MEDICAL OFFICERS OF HEALTH.

Dar es Salaam.—Dr. R. NIXON, Medical Officer of Health, assisted by
Dr. F. V. ADAMS for Port, Infectious Diseases, and Maternity
and Child Welfare services.

Financial depression caused restriction of new works both public and commercial: many shops were closed and petty street trading unfortunately correspondingly increased.

The same circumstances necessitated a reduction of medical officers from three to two and of sanitary superintendents from four to three.

No case of smallpox or other dangerous infectious disease occurred in town or district.

Legal powers to control buildings in which cooked food is prepared for sale off the premises, the sale of milk by itinerant vendors, the closure of cemeteries, and to alter the township boundary were sought or obtained.

The European statistics based on an estimated population of 1,420 were:

Birth rate 21.1.

Death rate (uncorrected) 5.6.

Infant mortality rate 32.2.

The African crude death rate was 17, a normal figure.

An important improvement of the anopheline breeding area adjoining the water works in Gerezani was effected in collaboration with the Malaria Research Unit's engineer. Notification was made of 3,950 cases of malaria with 29 deaths; 63.46 per cent. of these cases were diagnosed by blood examination. Twelve deaths from blackwater fever occurred. Of these twelve it appears probable that four acquired their malaria up-country.

Two hundred and twenty-four samples of various foodstuffs were taken for analysis and 210 lots of foodstuffs were destroyed as unsound. Only four out of 198 samples of milk failed to comply with legal standards for fat and non-fatty solids. A batch of eleven blown tins of ham canned in Europe were examined. On being pierced they gave forth a very foul gas but after exposure to the air for two hours the ham lost all its smell and appeared to be perfectly sound and could easily have been sold or eaten with no suspicion of its being bad. No pathogenic organisms were isolated from either aerobic or anaerobic culture in the laboratory.

Great improvements in the arrangement of the native beer market whereby it has been converted into an enclosed beer garden have been effected by the Township Authority which now controls all markets. Enclosure of the extended site and provision of seating accommodation and tables in separate open booths now allow of decent conditions for the consumption of the beer.

The difficulties of dealing with hawking, especially of foodstuffs, to which the main objections are the gross contamination to which the food is liable and the litter resulting in the streets where it is practised, and the unfair competition to which other tradesmen with fixed places of business are exposed, have been increased by the general depression in the bazaar.

Some nine public standpipes for the sale of main water at one cent per tin have now been established in the native areas.

The question of collecting the town's refuse by contract instead of by direct labour was examined and it was found that the direct method was economically run at a cost with which few local contractors could care to compete, even were satisfactory guarantees as to efficient service forthcoming. It was decided to make no change in the present method of direct collection. The question of insisting on private disposal of garden refuse was also examined and it was decided that no change in the present system of public collection and disposal should be made.

A new public laundry at Twiga Street has been brought into use and the old one in Gerezani abandoned.

There were 20,023 rats caught of which 2,960 were examined in the laboratory for plague, with negative results.

The Port Health staff visited 507 ships and 987 dhows. The dhow traffic has increased during the last four years while the ships show the following decrease during the same period: 602, 573, 548, 507. The Standard Quarantine Message system was introduced towards the end of the year. The necessity for including a microscope in the equipment of passenger vessels carrying a surgeon was represented to the shipping companies. One well-known British line had not complied with this recommendation at the end of the year.

Sixty-nine cases of tuberculosis, 58 of which occurred in natives were notified. Only three of the notified Africans were women. A scheme of discharge from hospital under observation has been initiated with some success: and employment on light work is sought for such improved patients. The co-operation of other departments in finding work such as that of doorkeeper or messenger for convalescents will go far to help to remove the fear which this disease has for the African, besides providing him with the means of obtaining an adequate diet with which to hold the disease in check.

Twenty-five cases of leprosy were notified. Out-patient treatment is popular. Hydrocreol is considered more efficient in treatment than Alepol, which is less painful. Fifty-three patients not suitable for treatment remained in the settlement.

One European case of typhoid was diagnosed: the source of infection was not traced.

A number of cases of Xerophthalmia developed in the gaol and yielded at once to cod liver oil treatment.

Maternity and Child Welfare.—Owing to the resignation of the lady medical officer, whose place was not filled, obstetrical and ante-natal work were undertaken by a medical officer from the native hospital. At the annual Baby Show kindly attended by His Excellency the Governor 104 babies were judged. Admissions to the clinic numbered 147 women and 96 children; 133 ante-natal examinations and 59 confinements were conducted. Out of 53 normal labours four children were still-born. Of 1,517 cases treated at the school clinic 419 suffered from superficial septic conditions, 230 from cuts and bruises, and 185 from mild chest conditions.

The need for a branch dispensary, especially for women and children, at Ilala native suburb, is mentioned.

Tanga.—Dr. J. M. CAMPBELL, Medical Officer of Health.

Events of local importance have been the identification of a *Glossina pallidipes* in the new residential quarter at Ras Kazone, of *T. congolense* in several dogs, the clearing and stumping of Ras Kazone, and draining of several anopheline breeding swamps, in one case by vertical drainage; also the tracing of cases of relapsing fever to a tick-infested remand cell at Muhesa.

Proposals for making effective the new Minor Settlements Ordinance a potent measure for the improvement of health are submitted: they entail co-operation and co-ordinated visits to the settlements by the administrative, agricultural and medical officers.

Only one death of a resident occurred among the European population which is estimated at 239. The European birth rate was 13.7.

Forty-three cases of tuberculosis were admitted to the Infectious Diseases Hospital. Seventeen deaths occurred at the hospital.

The native quarter was accurately surveyed during the year and recommendations for the control of development made.

Meat inspection was continued as before: 2,457 oxen, 4,297 sheep and goats and 44 pigs were slaughtered. Sixteen ox carcasses and seven sheep and goat carcasses were destroyed. Forty-eight ox carcasses were sterilized for cysticercosis. Portions of other carcasses and organs were also destroyed or sterilized.

In connection with Maternity and Child Welfare 2,095 new cases were treated at the Maternity and Child Welfare Clinic. An infant welfare clinic and a mothercraft class for schoolgirls were commenced: a yaws clinic for women and children is very well attended. Forty-two normal confinements as compared with 12 in 1931 were admitted; in-patients numbered 96 women as compared with 40, and out-patients were almost trebled.

Three hundred and seventy-seven steamers and 374 dhows were cleared.

Lake Province.—Dr. A. R. Lester, Medical Officer of Health, Mwanza.

The lake remained at a high level during the year. A marked diminution in the incidence of malaria with a slight incidence of blackwater fever occurred.

Experiments were conducted with small fish found near the lake shore to ascertain their value in the anti-mosquito campaign. Two types were tried, with the native names of *Udagara* and *Kambari* (probably a young barbel). The former were delicate in captivity but fed voraciously on mosquito larvæ but not on pupæ. The latter ate both larvæ and pupæ but apparently from hunger and not from choice. It was concluded that mosquito larvæ are eaten by the fish *Udagara*, only in water directly connected with the lake; and that mosquito larvæ did not form the normal diet of the fish *Kambari*.

Relapsing fever has increased greatly, most cases coming from outside the township. Cases of tuberculosis are all usually advanced. In the conditions in which they live they are a constant menace to those with whom they are in contact and their immediate and permanent segregation is a matter of no small importance to the community. Helminthic conditions show a reduction all round in the township, attributed in part to stricter application of elementary sanitation and the definition and clearing of bathing places. A total incidence of 43 per cent. of helminthic illness among the children at Bwiru School is indicative of the sanitary conditions in the village where there is no doubt that the infections are contracted. Of these 33 per cent. were new cases and 10 per cent. relapses or reinfections. All cases were discovered during routine examinations. Bilharzia, rectal and vesical, accounted for 20 per cent. of this total, hookworm 15 per cent., and the remaining were cases of roundworm, whipworm, tapeworm and strongyloides.

Forty per cent. of the pupils at the Mwanza town school were found on routine examination to be suffering from helminthic infections of which schistosomiasis accounted for 30 per cent. and ankylostomiasis 11 per cent. Ankylostomiasis cases treated at Mwanza hospital numbered 264 or 1.3 per cent. of total cases; and schistosomiasis accounted for 342 or 1.7 per cent. of total cases treated.

The following snails were identified from the Lake:—*Physopsis ovoidea*, *Melanoides tuberculata*, *Lymnæa elmetitensis* (Smith), *Viviparus constrictus* (Marts), and *Pila* sp. juv.

The European population figures are too small to justify the calculation of statistical rates. Among the Asiatic population of the township (1,289) the birth rate is 59, death rate 25 and infant mortality rate 325. Subdivisions of plots and houses is increasing congestion among them. The native figures are not sufficiently reliable for acceptance but improvement is shown.

An outbreak of scarlatina was reported from an American mission station in the district. Two American children and two or three native children were affected. The cases had recovered when reported and doubt existed as to whether the disease was scarlatina or dengue but the weight of evidence inclines towards the former. The source of infection was thought to be traceable to America, but cannot be stated with finality.

No case of plague was reported but an extensive tour was undertaken in the province in order to ascertain the existence of endemic foci of plague among wild rodents in areas previously infected. From a total of 1,500 rodents 700 spleen smears were examined with negative results. The following were kindly identified at the Transvaal Museum in Pretoria:—*Rattus rattus*, *Tatera swaythlingi* (Kershaw), *Mastomys coucha microdon*, *Lemniscomys barbarus albolineatus* (Matschie), and *Arvicanthis abyssinicus muansae* (Matschie). During the year 40,968 rats were killed in the township.

A sharp rise in the annual incidence of typhoid fever (14 cases), clinically diagnosed, occurred at the end of the dry season. Eighteen cases of dysentery (all forms), a smaller number than usual, were noted.

A scheme for the supply of the township with water submitted by the writer in 1926 came to fruition in December, 1931. Pipe-borne water is now led to all official and most non-official European quarters. The Asiatic and African populations find it cheaper to continue to draw their supplies from the lake than to purchase from the kiosks. All aerated water factories are connected with the main.

Bucket conservancy serves the European houses and excreta are burned in dry weather and trenched in wet. Other houses are served by pit latrines.

Little recruiting of labour was done during the year and labour camps remained practically empty.

Gross adulteration of the milk supply led to the necessity for insisting on the sale of all milk at the market with satisfactory results.

A series of lectures on hygiene was given to schools and teachers.

Recommendations for future works are of two categories, major for the future and minor for more immediate attention.

Major works include a sewerage system and the revetment of the lake shore for a length of four miles with reclamation of the narrow strip of swampy ground immediately behind, thus converting a weed-grown marsh into a fashionable boulevard.

Minor works include provision of an Infectious Diseases Hospital, sanitary provision for native servants at employers' houses, improvement of mosquito proofing of residential buildings, and additional general hospital accommodation.

Attendances at the Maternity and Child Welfare Clinic have increased continuously since 1929 and now number 42,167. Twenty-two confinements were attended in the town and six in the district.

Northern Province.—Dr. B. O. WILKIN, Medical Officer of Health, Moshi.

Further investigation into the source of Schistosome infections, foreshadowed in 1931, was carried on. It is apparent that a large part of Upare is dotted with danger spots. Arusha cases come from the furrows and swamps of Mbugwe.

There is a great deal of tapeworm in the province. The cattle for slaughter come from Mbulu. The Chagga cattle being mainly stall fed are not often exposed to infection. Masai meat is not heavily encysted. Action must therefore be directed against Mbulu cattle which are the most heavily infected. Efficient meat inspection is carried out in the townships of Moshi and Arusha only. Some eight per cent. of carcasses inspected at Moshi are infested with *Cysticercus bovis*. There are about 250 butchers' shops on Kilimanjaro without any meat inspection. At Moshi hospital 828 cases of taeniasis were treated.

In Moshi town market 14,285 cattle were sold at an average price of Shs. 24/91. The presence of *Glossinae pallidipes* and *brevipalpis* preclude the keeping of cattle in Moshi town. A single case of pulmonary and mediastinal gland tuberculosis was observed in Moshi abattoir.

Ankylostomiasis is found chiefly in foreigners, such as imported labourers.

Two cases of plague were reported from Mbulu.

Arrangements were concluded whereby the supply of vaccine lymph for distribution in the Tanga and Northern Provinces now comes by air from Mpwapwa and is stored at Moshi in a refrigerator.

The conditions for the housing and treatment of leprosy in the province are inadequate, as is the supervision of the existing settlement at Mawella. Improvement of the latter and investigation of the general provision for this disease is anticipated during 1933.

The public latrines in Moshi town have been converted to the smoke pit system with success.

The introduction of regular prison labour for routine sanitary duties has improved the cleanliness of both Arusha and Moshi to a very surprising extent.

Careful investigation of the Arusha water supply in collaboration with the Public Works and Geological Departments and the Laboratory was made in view of the necessity for finding a safe supply for the projected European boarding school, and of the unsatisfactory nature of the hospital supply. Improvements to the Moshi supply are in hand.

The Malaria Survey Unit at Tanga is extending its investigations to the province, especially at Moshi and Usa.

Of eight cases of blackwater fever in Moshi seven occurred in natives. The Mchagga who comes down from his mountain seems able to take blackwater on the plains.

The site, water-supply, buildings and environment of the Ngare Nairobi European school are unfavourably commented on.

Non-contracted labour, not medically examined, has replaced the more expensive contracted labour, mainly from the Central Province. Two permanent labour camps are maintained, efficiently run under the control of an administrative officer seconded for labour duties. During the year 18,956 travellers passed through the Ngare-Olmotonyi camp, the greater proportion of whom during 1931-32 have been moving eastwards, i.e. from home to work. Large numbers settle in the fertile province, and are a continual source of fresh infections of yaws and ankylostomiasis.

Amenities at Moshi have been improved by the construction of a swimming pool supplied by the overflow from the public supply.

A new brick dispensary was erected in Masailand by the administrative officer at Lolbene, where conjunctivitis is stated to be rampant among the old, the middle aged and the babies. Considerable improvement of the village sanitation has been effected at Kibaya where additional small wards have been erected at the hospital together with a brick house for the dispenser.

* * * * *

INTERNATIONAL HEALTH CONFERENCE AT CAPE TOWN.

In November, 1932, Dr. R. R. Scott, Deputy Director of Sanitary Service, proceeded to attend the League of Nations Health Conference which had been called on the recommendation of the Union Government to consider various problems common to the countries of Southern Africa.

At the Conference all the British East African territories, with the exception of Nyasaland and Somaliland, were represented, and in addition Nigeria and the Gold Coast and Portuguese East Africa and Angola also sent delegates.

The primary subject for discussion was the spread of yellow fever from endemic centres in the West Coast to other parts of Africa, with which was intimately connected the consideration of the International Sanitary Convention for Aerial Navigation. Plague, the introduction of smallpox from India to East Africa,

dengue fever, leprosy and rural health and medical services in Africa were also on the agenda; while the British delegates also discussed the recognition of the D.P.H. granted in the Union of South Africa, and the East Coast delegates considered the question of the medical inspection of passengers from Africa to India raised by the Government of India.

The Conference sat for ten days during which the delegates were the guests of the Union Government, and the proceedings were published in the Quarterly Bulletin of the Health Organization of the League of Nations, Vol. II, No. 1, of March, 1933.

The opportunity afforded by the Conference to representatives of the African colonies of meeting and discussing their common problems under the able chairmanship of Sir George Buchanan, who represented both the Health Section of the League and the Office International d'Hygiene Publique in Paris proved of the greatest value in clearing the air, particularly in regard to points of difficulty which had appeared in connection with trans-African air traffic, and it is hoped that another Conference may be convened not later than 1935 to further the common aims of the African territories in improving health conditions therein.

* * * * *

MEDICAL TRAINING FOR AFRICAN SCHOOLBOYS.

A system of medical training for the African schoolboys who wish to become dispensers was settled in consultation with the Education Department and the first class of six boys commenced in September.

The standard of education required before entrance is the completion of Standard VI and the passing of the Central School Leaving Certificate.

The boys are attached to the Sewa Hadji Hospital at Dar es Salaam, and during their first eighteen months they act as probationers and male nurses and are required to assist in carrying out the ordinary work of the medical and surgical wards and operating theatre, and to attend lectures on nursing and care of patients. During their probationary period they are provided with board and lodging at the school hostel. At the end of this period they will be expected to pass an examination on the care of patients and obtain a certificate of conduct and efficiency. Successful candidates will then enter the Dispenser-Learner class for one year and undergo training on the lines already in force for Dispensers, after which they will be required to pass a second test. Following this they will become clinical assistants in the out-patient department for six months and receive more advanced instruction in medicine, surgery, and hygiene on the lines laid down for the present Dispensers' Revision class. Students showing special aptitude will be selected for further training in laboratory work.

Annual Report, 1932, page 29.

ERRATA.

In the heading of the table read—

1930 for 1929, 1931 for 1930 and 1932 for 1931.

TABLE SHOWING INCIDENCE OF TUBERCULOSIS AT THE VARIOUS STATIONS 29
IN THE TERRITORY DURING 1930, 1931 AND 1932.

Stations	1930				1931				1932			
	Pulmonary		All other forms		Pulmonary		All other forms		Pulmonary		All other forms	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Arusha	13	3	29	2	9	2	6	2	13	3	5	—
Bagamoyo	8	2	—	—	4	1	—	—	4	—	—	—
„ District work	—	—	3	—	2	—	2	—	2	—	—	—
Biharamulo	1	—	—	—	5	—	1	—	—	—	—	—
Bukoba	4	—	18	1	21	—	10	—	22	1	3	—
Dar es Salaam :												
European Hospital	6	1	—	—	2	—	1	—	5	1	2	1
Sewa Hadji Hospital	24	1	5	1	19	3	8	1	38	—	10	3
Health Office *	16	—	—	—	13	—	—	—	10	—	—	—
Private Practitioners *	5	—	—	—	3	—	—	—	7	—	—	—
Dodoma	9	2	2	1	9	3	1	—	8	—	1	—
Handeni	29	—	8	—	—	—	1	—	4	—	—	—
Iringa	7	3	4	1	2	—	2	—	9	3	3	—
Kahama	6	3	1	1	5	—	—	—	11	—	—	—
Kasanga	—	—	—	—	—	—	—	—	—	—	—	—
Kasulo	1	—	1	1	3	1	1	—	1	—	—	—
Kibata	—	—	—	—	—	—	—	—	—	—	—	—
Kibaya	—	—	8	—	—	—	—	—	—	—	—	—
Kibondo	1	1	1	1	1	—	—	—	1	—	—	—
„ District work *	—	—	4	—	—	—	—	—	—	—	—	—
Kigoma	4	2	2	—	3	2	—	—	11	4	—	—
Kilosa	5	2	1	—	3	1	1	1	3	1	1	—
Kilwa	17	1	6	1	21	—	9	—	24	—	—	—
Kisaki	—	—	—	—	—	—	—	—	—	—	—	—
Kondoa	—	—	7	—	2	—	11	—	3	—	—	—
Korogwe	—	—	—	—	—	—	—	—	81	—	10	—
Lindi	3	3	4	2	4	3	2	2	11	2	—	—
Liwale	—	—	—	—	—	—	—	—	1	1	—	—
Lushoto	6	2	1	—	25	—	7	1	16	2	6	—
Mafia	2	—	—	—	8	—	—	—	4	1	—	—
Mahenge	7	1	—	—	2	1	1	—	3	—	1	—
„ District work *	2	—	—	—	82	—	—	—	—	—	—	—
Malangali	—	—	—	—	1	—	—	—	—	—	—	—
Manyoni	3	1	—	—	1	—	—	—	2	1	—	—
Mbeya	1	—	—	—	—	—	1	—	1	—	1	—
Mbulu	2	2	3	—	5	2	3	—	7	2	2	—
Mikindani	3	1	—	—	6	—	3	—	3	—	2	—
Mkalama	1	—	13	—	5	—	11	—	1	—	—	—
Morogoro	3	—	—	—	9	2	—	—	7	2	2	—
Moshi... ..	57	2	12	1	210	2	14	—	86	5	16	2
„ Kibongoto ...	57	5	51	1	65	8	77	2	83	6	48	1
„ District work *	133	—	49	—	67	—	238	—	113	—	377	—
Mpwapwa	2	1	—	—	—	—	—	—	—	—	2	—
Musoma	11	1	9	—	4	1	14	—	1	—	3	—
Mwanza	36	4	7	1	25	1	6	2	13	—	7	3
Mwaya	—	—	—	—	—	—	—	—	1	1	—	—
Nzega	8	2	2	—	4	1	6	—	1	—	—	—
Pangani	17	2	4	1	11	4	1	—	12	2	2	2
Shanwa	—	—	—	—	—	—	1	—	—	—	4	—
Shinyanga	4	2	1	—	1	—	—	—	2	1	—	—
Singida	—	—	—	—	4	2	—	—	2	—	1	—
Songea	4	—	15	—	5	—	13	1	4	—	7	—
Sumbawanga	6	—	1	—	3	—	—	—	—	—	—	—
Tabora	12	5	9	3	14	5	7	—	20	4	3	3
Tanga	46	8	11	—	83	6	24	—	77	6	10	3
Tukuyu	10	1	—	—	11	1	6	—	11	2	3	—
Tunduru	2	—	13	—	1	—	3	—	—	—	—	—
Ujiji	—	—	—	—	—	—	—	—	—	—	—	—
Usangi	88	1	93	—	143	1	73	—	150	13	100	—
Utete	—	—	1	—	1	—	—	—	3	1	2	—
Kahama Maternity and Child Welfare Centres	2	—	—	—	—	—	—	—	—	—	—	—
Total	684	65	399	19	927	53	564	12	892	65	634	18
Miscellaneous Dispen- saries, Missions, etc.	7	—	9	—	9	2	—	—	16	2	1	—
Grand Total ...	691	65	408	19	936	55	565	12	908	67	635	18

*Not included in Tables V and VI.

MENTAL HOSPITALS.

I.—DODOMA MENTAL HOSPITAL.

<i>Numbers:—</i>				Males	Females	Total
In hospital 1st January, 1932	...	...	...	55	28	83
Admitted during year	...	...	...	37	11	48
Discharged during year	...	...	...	16	4	20
Died during year	...	...	...	10	5	15
In hospital 31st December, 1932	...	...	...	66	30	96

Classification of Admissions:—

Confusional Insanity	...	...	...	...	...	17
Dementia	...	...	...	...	...	6
Mania in various forms	...	...	...	...	...	12
Delusional Insanity	...	...	...	...	...	9
Imbecility	...	...	...	...	...	4

Discharges:—

Discharged by Board of Visitors	...	...	...	20
Two of the above were subsequently readmitted.				

Deaths:—

Deaths were due to the following causes superimposed on the condition for which the patient was admitted to the hospital:—

Diarrhoea	...	...	...	...	...	8
Broncho-pneumonia	...	...	...	...	...	3
Oesophgeal stricture	...	...	...	...	...	1
Exhaustion	...	...	...	...	...	2
Heart failure	...	...	...	...	...	1

Inspections:—

The hospital was inspected and all patients seen by:

The Board of Visitors	...	...	...	13 visits
The Senior Medical Officer, Dodoma	...	...	...	56 „
Other Government Officials	...	...	...	3 „

II.—LUTINDI MENTAL HOSPITAL.

<i>Numbers:—</i>				Males	Females	Total
In hospital 1st January, 1932	...	...	...	74	38	112
Admitted during year	...	...	...	20	4	24
Discharged during year	...	...	...	4	0	4
Died during year	...	...	...	7	8	15
In hospital 31st December, 1932	...	...	...	83	34	117

Classification of Admissions:—

Dementia	...	...	...	...	...	4
Paranoia	...	...	...	...	...	5
Delusional Insanity	...	...	...	...	...	3
Mania	...	...	...	...	...	4
Imbecility	...	...	...	...	...	2
Melancholia	...	...	...	...	...	4
Epilepsy	...	...	...	...	...	1
Paralysis	...	...	...	...	...	1

Discharges:—

Discharged by Board of Visitors as recovered	4
--	-----	-----	---

II.—LUTINDI MENTAL HOSPITAL.—(*Continued*).*Deaths:—*

Chronic debility	...	...	...	...	...	...	...	1
Weakness	...	...	...	...	...	...	...	1
Old age	...	...	...	...	...	...	...	1
Apoplexy	...	...	...	...	...	...	...	4
Dysentery	...	...	...	...	...	...	...	4
Dropsy	...	...	...	...	...	...	...	2
Intestinal diseases...	...	...	...	...	...	...	...	1
Heart failure	...	...	...	...	...	...	...	1

Inspections:—

The Provincial Commissioner, Tanga	...	...	...	1 visit
The Senior Medical Officer, Tanga	...	...	...	4 visits
The Medical Officer, Tanga	...	...	...	3 „
The District Officer, Lushoto	...	...	...	1 visit

RAINFALL. TOTAL RAINFALL IN MILLIMETRES BY STATIONS, 1932.

District				Station				Feet above sea level	Rainfall in Millimetres
CENTRAL LINE AREA:									
Dar es Salaam				Dar es Salaam				S.L.	1,133·1
Morogoro... ..				Morogoro				1,628	907·4
				Kilosa... ..				1,606	1,171·1
Dodoma				Dodoma				3,693	403·9
				Manyoni				4,135	532·3
				Singida				5,233	517·8
				Mpwapwa				3,000	594·3
Tabora				Tabora				4,000	847·7
				Kahama				4,055	640·5
				Nzega... ..				4,000	813·2
Kigoma				Kigoma				2,531	1,212·6
				Kasulu				4,530	753·9
				Kibondo				4,981	1,053·0
COASTAL AREA, SOUTH:									
Lindi				Lindi				S.L.	980·5
				Tunduru				2,300	910·2
				Masasi... ..				1,505	804·7
				Mikindani				S.L.	868·5
Kilwa				Kilwa... ..				S.L.	1,100·8
				Liwale				1,500	770·9
Rufiji				Utete				327	1,011·0
COASTAL AREA, NORTH:									
Tanga				Amani				3,004	1,948·5
NORTHERN HINTERLAND:									
Moshi				Moshi... ..				2,649	921·6
Arusha				Arusha				4,416	1,482·4
				Mbulu... ..				5,900	798·5
Mwanza				Musoma				3,709	714·2
Bukoba				Bukoba				3,709	1,830·2
				Biharamulo				4,350	1,086·4
Kondoa				Mkalama				4,235	710·1
SOUTHERN HINTERLAND:									
Songea				Songea				3,826	1,133·4
Iringa				Iringa... ..				5,365	668·9
				Njombe				—	865·8
Rungwe				Tukuyu				5,069	2,635·9
Mbeya				Mbeya				—	925·4
Ufipa				Sumbawanga				5,100	1,149·0

DENTAL TREATMENT.

The following work for officials, their wives and families was performed by the Senior Dental Surgeon, Dar es Salaam, and the Dental Surgeon, Tanga, during the year :—

Attendances	...	...	...	...	...	3,676
Fillings	...	...	...	...	...	1,340
Extractions	...	...	...	...	...	670
Pulp treatments	...	...	...	...	...	122
Scaling	...	...	...	...	...	276
Radiograms taken	...	...	...	...	...	180
Dentures made	...	...	...	...	...	124
Repairs to dentures	...	...	...	...	...	136

A number of the African population and some of the native school children also received treatment.

TABLE II.—FINANCIAL.

From 1st April to 31st December, 1932.*

Details of Expenditure					Approved Estimates	Actual Expenditure
					£	£
<i>Expenditure:—</i>						
Personal Emoluments	...	...	...	...	100,732	96,219
<i>Other Charges:—</i>						
Outfit Allowances	...	...	...	...	68	30
Upkeep of Hospitals...	...	...	...	...	11,625	8,493
Upkeep of Quarantine and Infectious Diseases Hospitals	...	...	...	...	450	329
Tuberculosis Scheme (Kilimanjaro)	...	...	...	...	608	472
Upkeep of Laboratory, Dar es Salaam	...	...	...	...	113	58
Upkeep of Lymph Laboratory, Mpwapa	...	...	...	...	188	167
Maintenance of Leprosy Patients	...	...	...	...	3,150	2,461
Maintenance of Mental Patients and Hospitals	...	...	...	...	1,125	1,084
Epidemic Outbreaks and Special Sanitary Measures	...	...	...	...	225	89
Sleeping Sickness Measures	...	...	...	...	5,550	5,472
Venereal Diseases and Yaws	...	...	...	...	75	73
Maternity and Child Welfare	...	...	...	...	1,950	1,480
Sanitary Labour	...	...	...	...	6,570	5,773
Sanitary Equipment...	...	...	...	...	560	593
Sanitary Oils and Disinfectants	...	...	...	...	225	207
Medical and Surgical Stores	...	...	...	...	12,375	11,301
Quinine for Public Purchase at Post Offices	...	...	...	...	1,100	1,117
Equipment and Furniture	...	...	...	...	3,750	3,364
Microscopes and Accessories	...	...	...	...	188	191
Vaccines and Serum	...	...	...	...	225	188
Books of Reference	...	...	...	...	56	40
Periodicals	...	...	...	...	90	90
Postmortem Fees	...	...	...	...	375	604
Electricity and Water	...	...	...	...	2,175	1,820
Travelling Allowances	...	...	...	...	128	69
Transport Allowances	...	...	...	...	3,075	1,927
Transport	...	...	...	...	2,625	1,597
Railway Fares and Freight	...	...	...	...	3,375	3,838
Passages	...	...	...	...	5,806	4,929
Tents and Camp Equipment	...	...	...	...	150	135
Uniforms	...	...	...	...	675	449
Typewriters	...	...	...	...	75	78
Allowances to Medical Officers for Dental work	...	...	...	...	56	42
Fees, etc., of Medical Officers attending Courses of Instructions	...	...	...	...	300	159
Medical Attendance Outside the Territory	...	...	...	...	300	358
Contribution to Tropical Diseases Research Fund	...	...	...	...	150	150
Contribution to Bureau of Hygiene and Tropical Diseases	...	...	...	...	200	200

*NOTE :—Financial statement is for nine months only. Medical Report relates to whole year.

TABLE II.—FINANCIAL.—(Contd.)

Details of Expenditure	Approved Estimates	Actual Expenditure
	£	£
Contribution to Tropical Diseases Hospital	20 ...	20
Contribution to Advisory Medical and Sanitary Committee for Tropical Africa...	75 ...	—
Contribution to International Office of Public Health	30 ...	—
Pauper Burials	7 ...	4
Upkeep of Quarantine Station, Zanzibar ...	960 ...	948
Upkeep of Motor Boats	225 ...	236
Upkeep and Maintenance of Motor Vehicles	420 ...	396
Stationery	263 ...	172
Mass Treatment of Ankylostomiasis ...	37 ...	—
Contingencies... ..	90 ...	53
Contribution to Institute of Human Try- panosomiasis Research, Entebbe ...	— ...	18
TOTAL OTHER CHARGES ...	71,858 ...	61,274
PERSONAL EMOLUMENTS ...	100,732 ...	96,219
TOTAL ...	172,590 ...	157,493

Details of Revenue.

Revenue:—

	£
From Hospital Fees, Sale of Drugs, etc.	6,745
Fees collected by Marine and Customs Departments for Bills of Health	1,137
Sale of Vaccine Lymph	84
Fees for Mechanical Dental Work	450
TOTAL ...	8,416
Reimbursement by Tanganyika Railways for Medical Service... ..	4,763
TOTAL ...	13,179

TABLES IV AND V.
EUROPEANS (OFFICIAL AND NON-OFFICIAL)
RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932.

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
I.—Epidemic, Endemic and Infective Diseases.									
1. Enteric Group—									
(a) Typhoid fever	11	...	...	...	11
(b) Paratyphoid A
(c) Paratyphoid B
(d) Type not defined	2	...	...	...	2
2. Typhus
3. Relapsing Fever	11	...	...	3	14
4. Undulant Fever
5. Malaria—									
(a) Tertian
(b) Quartan	15	...	...	...	24
(c) Aestivo-autumnal (subtertian)	4	...	...	...	2
(d) Cachexia	486	1	...	194	684
(e) Blackwater	8	...	...	9	17
(f) Cerebral	28	10	...	2	30
(g) Unclassified
6. Smallpox	1	...	...	...	...
Alastrim	80	...	...	...	131
7. Measles
8. Scarlet Fever	2	...	...	...	2
9. Whooping Cough
10. Diphtheria	1	...	...	...	13
11. Influenza
12. Miliary Fever	84	...	...	48	136
13. Mumps
14. Cholera	1	...	...	1	2
15. Epidemic Diarrhoea
16. Dysentery—									
(a) Amoebic
(b) Bacillary	24	...	...	26	53
(c) Undefined or due to other causes	6	1	...	2	9
	4	...	...	3	7

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932

[illegible]

DISEASES	In-Patients						Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total		
		Admis- sions	Deaths							
57. Diabetes (not including Insipidus)	3	1	3	...	3	6	
58. Anæmia—	
(a) Pernicious	
(b) Other Anæmias and Chlorosis	5	1	5	...	6	17	
59. Diseases of the Pituitary Body	
60. Diseases of the Thyroid Gland—	
(a) Exophthalmic Goitre	1	1	
(b) Other diseases of the Thyroid Gland, Myxœdema	1	1	
61. Diseases of the Para-Thyroid Glands	
62. Diseases of the Thymus	
63. Diseases of the Supra-Renal Glands	
64. Diseases of the Spleen	2	2	
65. Leukæmia—	
(a) Leukæmia	
(b) Hodgkin's Disease	
66. Alcoholism	
67. Chronic poisoning by mineral substances (lead, mercury, etc.)	
68. Chronic poisoning by organic substances (morphia, cocaine, etc.)	1	1	1	...	...	1	
69. Other General Diseases—	
(a) Auto-intoxication	
(b) Purpura Hæmorrhagica	
(c) Hæmophilia	
(d) Diabetes Insipidus	
III.—Affections of the Nervous System and Organs of the Senses.										
70. Encephalitis (not including Encephalitis Lethargica)	
71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis)	
72. Locomotor Ataxy	
73. Other affections of the Spinal Cord	1	...	1	...	1	2	
74. Apoplexy—	3	1	3	...	1	4	
(a) Hæmorrhage	
(b) Embolism	
(c) Thrombosis	
75. Paralysis—	
(a) Hemiplegia	
(b) Other Paralysis	1	...	1	...	...	1	

Tables IV AND V—*contd.*

EUROPEANS (OFFICIAL AND NON-OFFICIAL).

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932.

DISEASES	In-Patients				Out-Patients			Total Cases In-and Out Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total
		Admis- sions	Deaths					
76. General Paralysis of the Insane
77. Other forms of Mental Alienation ...	1	...	...	1	...	1	...	2
78. Epilepsy	1	...	1	...	...	...	1
79. Eclampsia Convulsions (non-puerperal) 5 years and over	1	...	1	...	...	...	1
80. Infantile Convulsions...
81. Chorea
82. (a) Hysteria	2	...	2	...	1	...	3
(b) Neuritis	5	...	5	...	12	7	19
(c) Neurasthenia
83. Cerebral Softening
84. Other affections of the Nervous System, such as Paralysis Agitans	7	...	7	...	18	17	35
85. Affections of the Organs of Vision—
(a) Disease of the Eye	5	...	5	...	38	14	52
(b) Conjunctivitis	1	...	1
(c) Trachoma
(d) Tumours of the Eye	3	...	3	...	35	21	56
(e) Other affections of the Eye	9	...	9	...	94	30	124
86. Affections of the Ear or Mastoid Sinus
IV.—Diseases of the Circulatory System.								
87. Pericarditis	1	1	1	...	...	...	1
88. Acute Endocarditis or Myocarditis...	3	...	3	...	...	...	3
89. Angina Pectoris	1	...	1	...	...	...	1
90. Other Diseases of the Heart—
(a) Valvular
Mitral
Aortic	2	2
Other Valvular Diseases	8	1	8	...	1	...	1
(b) Myocarditis	4	1	4	...	8	10	18
Diseases of the Arteries—	3	...	3
(a) Aneurism
(b) Arterio-sclerosis	2	1	2	...	1	...	2
(c) Other Diseases...	2	...	2	...	...	...	...
92. Embolism or Thrombosis (non-cerebral)	3	...	3	...	...	...	3

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
93. Diseases of the Veins— Hæmorrhoids Varicose Veins Phlebitis 94. Diseases of the Lymphatic System— Lymphangitis Lymphadenitis, Bubo (non-specific) 95. Hæmorrhage of undetermined cause 96. Other affections of the Circulatory System	7 2 3 ... 1	... ... ... ... ... ... ... ...	7 2 3 ... 1	1	30 3 ... 1 4 2 2	4 1 1	34 3 ... 2 4 2 3	41 3 ... 4 7 2 4
V.—Affections of the Respiratory System.									
97. Diseases of the Nasal Passages— Adenoids Polypus Rhinitis Coryza 98. Diseases of Larynx, Laryngitis 99. Bronchitis— (a) Acute (b) Chronic (c) Unclassified 100. Broncho-Pneumonia 101. Pneumonia— (a) Lobar (b) Unclassified 102. Pleurisy, Empyema 103. Congestion of the Lungs 104. Gangrene of the Lungs 105. Asthma 106. Pulmonary Emphysema 107. Other affections of the Lungs Pulmonary Spirochætosis...								

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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1109. Affections of the Pharynx or Tonsils— Tonsillitis Pharyngitis 1110. Affections of the Esophagus 1111. A.—Ulcer of the Stomach ... B.—Ulcer of the Duodenum ... 1112. Other affections of the Stomach— Gastritis Dyspepsia, etc. 1113. Diarrhoea and Enteritis (under two years)... 1114. Diarrhoea and Enteritis ... Over two years —Colitis ... —Ulceration 1114a. Sprue 1115. Ankylostomiasis 1116. Diseases due to Intestinal Parasites— (a) Cestoda (Taenia) (b) Trematoda (Flukes) (c) Nematoda (other than Ankylostoma) Ascaris Dracunculus Oxyuris... .. Strongylus Trichina Trichocephalus Dispar (d) Coccidia (e) Other Parasites (f) Unclassified 1117. Appendicitis 1118. A.—Hernia B.—Intestinal Obstruction 1119. A.—Affections of the Anus, Fistula, etc B.—Other affections of the Intestines—Enteroptosis Constipation

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
120. Acute Yellow Atrophy of the Liver
121. Hydatid Tumour of the Liver
122. Cirrhosis of the Liver—
(a) Alcoholic
(b) Other forms
123. Biliary Calculus
124. Other Diseases of the Liver—
Abscess
Hepatitis
Cholecystitis
Jaundice
125. Diseases of the Pancreas
126. Peritonitis (of unknown cause)
127. Other Diseases of the Digestive System
VII.—Diseases of Genito-Urinary System (Non-Venereal).									
128. Acute Nephritis	1	1	...	...	...	...	...	...	...
129. Chronic Nephritis	...	3	2	3	...	...	...	...	...
130. A.—Chyluria
B.—Schistosomiasis
131. Other Diseases of the Kidneys—Pyelitis, etc.
132. Urinary Calculus	...	10	...	10	...	...	...	...	...
133. Diseases of the Bladder—	...	2	...	2	...	...	...	...	...
1. Cystitis	...	9	...	9	...	11	11	22	31
2. Other diseases	...	2	...	2	...	4	3	7	9
134. Diseases of the Urethra—
(a) Stricture	...	1	...	1	...	...	...	...	...
(b) Other	2	...	2	...
135. Diseases of the Prostate—
Hypertrophy	8	...	8	...
Prostatitis	...	1	...	1	...	...	...	...	...
136. Diseases (non-venereal) of the Genital Organs of Man—
Epididymitis	...	1	...	1	...	1	1	1	...
Orchitis	...	1	...	1	...	8	...	8	...
Hydrocele	...	1	...	1	...	5	...	5	...
Ulcer of Penis	...	3	...	3	...	2	...	2	...
137. Cysts or other non-malignant Tumours of the Ovaries	...	1	...	1	...	...	2	2	...

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932

DISEASES	In-Patients				Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total
		Admis- sions	Deaths					
138. Salpingitis—Abscess of the Pelvis	5	...	5	...	...	3	8
139. Uterine Tumours (non-malignant)	1	...	1	...	...	...	1
140. Uterine Hæmorrhage (non-puerperal)	...	15	...	15	...	...	35	50
141. A.—Metritis
B.—Other affections of the Female Genital Organs—
Displacements of the Uterus	3	...	3	...	...	3	6
Amenorrhœa	2	...	2	...	...	10	12
Dysmenorrhœa	4	...	4	...	...	12	16
Leucorrhœa	1	...	1	...	...	9	10
142. Diseases of the Breast (non-puerperal)—
Mastitis	1	...	1	...	...	2	3
Abscess of Breast	2	...	2	...	...	5	7
VIII.—Puerperal State.
143. A.—Normal Labour ...	4	85	...	89	...	...	5	94
B.—Accidents of Pregnancy—
(a) Abortion	28	...	28	1	...	2	30
(b) Ectopic Gestation
(c) Other Accidents of Pregnancy	11	...	11	...	...	24	35
144. Puerperal Hæmorrhage ...	1	...	...	1	...	...	...	1
145. Other Accidents of Parturition	4	...	4	...	...	9	13
146. Puerperal Septicæmia
147. Phlegmasia dolens
148. Puerperal eclampsia
149. Sequelæ of Labour	1	1
150. Puerperal affections of the Breast	3	...	3	...	...	...	3
IX.—Affections of the Skin and Cellular Tissue.
151. Gangrene
152. Carbuncle, Boil	9	...	9	...	102	21	132
153. Abscess	12	...	12	1	27	8	47
Whitlow
Cellulitis	16	...	16	...	25	7	48
Ulcer	13	...	13	...	90	52	155

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospital at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
191. Execution of civilians by belligerents
192. A.—Over fatigue
B.—Hunger or thirst
193. Exposure to cold, frost, etc.
194. Exposure to Heat—
Heatstroke	...	1	...	1	...	...	...	...	1
Sunstroke	...	1	...	1	...	...	...	...	1
195. Lightning stroke
196. Electric shock
197. Murder by firearms
198. Murder by cutting or stabbing instruments
199. Murder by other means
200. Infanticide (murder of an infant under one year)
201. A.—Dislocation	...	2	...	2	...	5	...	5	7
B.—Sprain	...	7	...	7	...	40	3	43	50
C.—Fracture	...	11	...	11	...	6	3	9	20
202. Other external injuries	...	8	...	8	...	42	8	50	58
203. Deaths by violence of unknown cause
XV.—Ill-defined Diseases.									
204. Sudden death (cause unknown)
205. A.—Diseases not already specified or ill-defined
Heart failure
Ascites
Edema	1	...	1	1
Asthenia	...	2	...	2	...	3	...	3	5
Shock
Hyperpyrexia	...	1	...	1	...	...	...	...	1
Neuralgia and headache not yet diagnosed	...	3	...	3	...	16	9	25	28
Pyrexia of uncertain origin	...	52	...	52	...	25	29	54	106
Other ill-defined diseases
Debility	...	14	...	14	...	60	33	93	107
B.—Malingering	3	...	3	6
TOTAL	28	1,688	37	1,716	20	1,997	1,018	3,015	4,731

TABLES IV AND V.
FOR ALL DENOMINATIONS.
RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932.

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
I.—Epidemic, Endemic and Infective Diseases.									
1. Enteric Group—									
(a) Typhoid Fever	1	38	4	39	1	1	...	1	40
(b) Paratyphoid A	...	6	2	6	...	...	...	...	6
(c) Paratyphoid B	...	1	...	1	...	...	...	...	1
(d) Type not defined	...	6	1	6	...	...	...	...	6
2. Typhus	...	...	...	...	...	1	...	1	1
3. Relapsing Fever	2	320	9	322	9	286	56	342	664
4. Undulant Fever	...	...	...	...	...	...	...	...	...
5. Malaria—									
(a) Tertian	1	167	2	168	1	738	215	953	1,121
(b) Quartan	...	4	...	4	...	883	114	997	1,001
(c) Aestivo-autumnal (subtertian)	32	3,117	38	3,149	33	17,305	5,668	22,973	26,122
(d) Cachexia	...	94	5	94	1	694	352	1,046	1,140
(e) Blackwater	...	94	25	94	1	2	2	4	98
(f) Cerebral	1	7	6	8	...	...	...	...	8
(g) Unclassified	6	406	2	412	4	1,978	463	2,441	2,853
6. Smallpox	5	8	...	13	...	...	1	1	14
Alastrim	...	...	...	...	...	...	...	...	...
7. Measles	2	43	...	45	...	49	11	60	105
8. Scarlet Fever	...	...	...	...	...	...	...	...	...
9. Whooping Cough	2	20	1	22	1	594	421	1,015	1,037
10. Diphtheria	...	...	...	...	...	...	...	...	...
11. Influenza	31	529	14	560	10	3,254	916	4,170	4,730
12. Miliary Fever	...	...	...	...	...	...	...	...	...
13. Mumps	...	74	...	74	...	471	145	616	690
14. Cholera	...	...	...	...	...	...	...	...	...
15. Epidemic Diarrhoea	...	...	...	...	...	...	...	...	...
16. Dysentery—									
(a) Amoebic	11	193	15	204	2	413	177	590	794
(b) Bacillary	...	33	5	33	...	67	16	83	116
(c) Undefined or due to other causes	2	64	4	66	2	240	73	313	379

DISEASES	In-Patients				Remain- ing in Hospitals at end of 1932	Out-Patients			Total Cases In- and Out- Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated		Males	Females	Total	
		Admis- sions	Deaths						
17. Plague—	...	...	...	...	...	...	...	...	...
(a) Bubonic	...	...	...	...	...	...	...	...	...
(b) Pneumonic	...	...	...	...	...	...	...	...	...
(c) Septicæmic	...	...	...	...	...	...	...	...	...
(d) Undefined	...	...	...	...	...	3	5	8	...
18. Yellow Fever	...	...	...	...	...	...	...	...	...
19. Spirochaetosis icterohæmorrhagica	...	...	...	...	...	...	...	...	...
20. Leprosy	203	323	7	526	103	233	99	332	858
21. Erysipelas	...	9	1	9	...	1	2	3	12
22. Acute Poliomyelitis	...	...	...	...	...	...	...	...	...
23. Encephalitis Lethargica	...	...	...	...	...	...	...	...	...
24. Epidemic Cerebro-spinal Fever	...	...	...	...	...	...	...	...	...
25. Other Epidemic Diseases—	...	7	5	7	...	2	3	5	12
(a) Rubella (German Measles)	...	...	...	...	...	1	...	1	1
(b) Varicella (Chickenpox)	6	275	...	281	5	460	32	492	773
(c) Kala-azar	...	...	...	...	...	...	...	...	...
(d) Phlebotomus Fever	...	...	...	...	...	...	...	...	...
(e) Dengue	...	2	...	2	...	...	...	...	2
(f) Epidemic Dropsy	...	...	...	...	...	...	...	...	...
(g) Yaws	...	...	...	...	...	...	...	...	...
(h) Trypanosomiasis	88	2,381	4	2,469	91	42,964	38,178	81,142	83,611
26. Glanders	96	251	56	347	40	21	2	23	370
27. Anthrax	...	49	2	49	1	4	1	5	5
28. Rabies	...	...	...	...	...	3	...	3	52
29. Tetanus	...	...	...	...	...	...	...	...	...
30. Mycosis	...	24	12	24	1	2	2	4	28
31. Tuberculosis, Pulmonary and Laryngeal	...	3	...	3	...	...	...	...	3
32. Tuberculosis of the Meninges or Central Nervous System	23	324	52	347	47	270	129	399	746
33. Tuberculosis of the Intestines or Peritoneum	...	3	2	3	...	4	1	5	8
34. Tuberculosis of the Vertebral Column	...	6	4	6	1	1	...	1	7
35. Tuberculosis of Bones and Joints	5	15	4	20	5	20	6	26	46
36. Tuberculosis of Other Organs—	3	20	1	23	6	5	1	6	29
(a) Skin or subcutaneous tissue (Lupus)	...	1	1	1	...	2	1	3	4
(b) Bones (vertebral column excepted)	3	8	1	11	3	3	1	4	15
(c) Lymphatic System	10	35	...	45	5	101	110	211	256
(d) Genito-urinary	...	1	...	1	...	1	...	1	2
(e) Other Organs	10	5	5	15	...	130	53	183	198

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
37. Tuberculosis disseminated— (a) Acute (b) Chronic ... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...
38. Syphilis— (a) Primary (b) Secondary (c) Tertiary (d) Hereditary (e) Period not indicated 	24 39 20 2 2	468 433 186 47 28	1 2 5 7 1	492 472 206 49 30	31 44 11 4 1	5,263 2,860 3,124 652 167	3,731 2,235 3,642 476 141	8,994 5,095 6,766 1,128 308	9,486 5,567 6,972 1,177 338
39. Soft Chancre 	1	10	...	11	...	34	3	37	48
40. A.—Gonorrhea and its complications B.—Gonorrheal Ophthalmia C.—Gonorrheal Arthritis D.—Granuloma Venereum 	46 ... 1 ...	688 18 16 ...	7	734 18 17 ...	27 3 1 ...	7,576 61 34 2	1,031 31 7 ...	8,607 92 41 2	9,341 110 58 2
41. Septicæmia ... ... ... ...	...	20	7	20	2	2	...	2	22
42. Other Infectious Diseases 	1	6	3	7	...	16	6	22	29
II.—General Diseases not mentioned above.									
43. Cancer or other malignant Tumours of the Buccal Cavity ...	...	2	1	2	...	1	...	1	3
44. Cancer or other malignant Tumours of the Pharynx Esophagus, Stomach, Liver and Annexa 	1	17	9	18	2	...	...	...	18
45. Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum ... ... ... ...	...	8 7 4 12 23 109	3 1 1 8 3 ...	8 7 5 13 27 117	... 1 1 1 3 8	... ... ... ... 50 207 2,965	... 1 1 ... 39 88 1,036	... 1 1 ... 89 295 4,001	8 8 6 13 29 206 320 4,124
46. Cancer or other malignant Tumours of the Female Genital Organs	...	...	...	...	...	...	...	...	...
47. Cancer or other malignant Tumours of the Breast	1	4	1	5	1	...	1	1	...
48. Cancer or other malignant Tumours of the Skin ...	1	12	1	13	1	...	...	...	...
49. Cancer or other malignant Tumours of Organs not specified	4	23	8	27	3	2	...	2	...
50. Tumours, non-malignant	8	109	3	117	8	50	39	89	206
51. Acute Rheumatism 	2	23	...	25	1	207	88	295	320
52. Chronic Rheumatism	3	120	...	123	8	2,965	1,036	4,001	4,124
53. Scurvy (including Barlow's Disease)	...	16	...	16	...	9	4	13	29
54. Pellagra ... ... ... ...	...	2	1	2	...	9	5	14	16
55. Beri-Beri 	2	12	...	14	1	2	1	3	17
56. Rickets 	1	3	...	4	...	19	18	37	41
57. Diabetes (not including Insipidus) ...	...	12	2	12	...	23	3	26	38

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1931	Males	Females	Total	
		Admis- sions	Deaths						
58. Anæmia— (a) Pernicious (b) Other Anæmias and Chlorosis ... ..	... .. ... ..	2 41	2 6	2 43	... .. 1	28 215	21 126	49 341	51 384
59. Diseases of the Pituitary Body ... ..	... ..	...	...	...	...	...	...	...	...
60. Diseases of the Thyroid Gland— (a) Exophthalmic Goitre (b) Other diseases of the Thyroid Gland, Myxœdema ... ..	... .. ... ..	1 2	1 1	1 2	... .. ...	1 2	1 3	2 5	3 7
61. Diseases of the Para-Thyroid Glands ... ..	... ..	...	...	...	...	...	...	...	...
62. Diseases of the Thymus ... ..	... ..	...	...	...	...	...	...	...	...
63. Diseases of the Supra-Renal Glands ... ..	... ..	2	...	2	...	3	3	6	8
64. Diseases of the Spleen ... ..	... ..	38	3	39	3	822	562	1,384	1,423
65. Leukæmia— (a) Leukæmia (b) Hodgkin's Disease ... ..	... .. ... ..	1 2	...	1 2	... .. ...	... .. 1	... .. ...	... .. 1	1 3
66. Alcoholism ... ..	... ..	2	...	2	...	6	...	6	8
67. Chronic poisoning by mineral substances (lead, mercury, etc.) ... ..	... ..	...	...	...	...	1	...	1	1
68. Chronic poisoning by organic substances (morphia, cocaine, etc.) ... ..	... ..	...	1	1	...	...	...	...	...
69. Other General Diseases— (a) Auto-intoxication (b) Purpura Hæmorrhagica (c) Hæmophilia (d) Diabetes Insipidus ... ..	... .. ... .. ... .. ... ..	... .. ... .. ... .. 3	... .. ... .. ... .. ...	... .. ... .. ... .. 3	... .. ... .. ... .. ...	... .. ... .. ... .. 75	... .. ... .. ... .. 17	... .. ... .. ... .. 92	... .. ... .. ... .. 95
III.—Affections of the Nervous System and Organs of the Senses.									
70. Encephalitis (not including Encephalitis Lethargica) ... ..	... ..	8	4	8	...	...	...	...	8
71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis) ... ..	... ..	13	7	13	...	...	...	...	13
72. Locomotor Ataxy	1	3	...	4	...	...	1	1	5
73. Other affections of the Spinal Cord	3	7	2	10	1	5	1	6	16
74. Apoplexy— (a) Hæmorrhage (b) Embolism (c) Thrombosis	3	9	4	12 ... .. ...	... .. ... .. ...	1 ... .. ...	... .. ... .. ...	1	13
75. Paralysis— (a) Hamiplegia (b) Other Paralysis	1 1	29 47	1 5	30 48	2 6	6 42	3 10	9 52	39 100

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients	
	Remain- ing in Hospitals at end of 1931	Yearly Total Admis- sions	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females		Total
			Deaths							
93. Diseases of the Veins— Hæmorrhoids Varicose Veins Phlebitis 94. Diseases of the Lymphatic System— Lymphangitis Lymphadenitis, Bubo (non-specific) 95. Hæmorrhage of undetermined cause 96. Other affections of the Circulatory System	... 1 2 4	40 4 6 29 138 8 3	... ... ... ... ... 2 ...	... ... ... ... ... ... ...	40 5 6 31 142 8 3	1 1 7	126 30 29 257 647 24 9	19......1 81 98 3 3	145 30 30 338 745 27 12	185 35 36 369 887 35 15
V.—Affections of the Respiratory System.										
97. Diseases of the Nasal Passages— Adenoids Polypus Rhinitis Coryza 98. Diseases of Larynx, Laryngitis 99. Bronchitis— (a) Acute (b) Chronic (c) Unclassified 100. Broncho-Pneumonia 101. Pneumonia— (a) Lobar (b) Unclassified 102. Pleurisy, Empyema 103. Congestion of the Lungs 104. Gangrene of the Lungs 105. Asthma 106. Pulmonary Emphysema 107. Other affections of the Lungs— Pulmonary Spirochaetosis	... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... ...								

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932.

DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
109. Affections of the Pharynx or Tonsils— Tonsillitis	2	133	...	135	1	2,162	886	3,048	3,183
Pharyngitis	2	63	2	65	3	2,862	1,022	3,884	3,949
110. Affections of the Esophagus	...	1	...	1	...	1	...	1	2
111. A.—Ulcer of the Stomach	13	...	13	2	5	3	8	21
B.—Ulcer of the Duodenum	3	1	3	...	4	...	4	7
112. Other affections of the Stomach—Gastritis Dyspepsia, etc.	39	1	39	...	313	212	525	564
113. Diarrhoea and Enteritis—under two years	2	74	2	76	...	1,441	748	2,189	2,265
114. Diarrhoea and Enteritis—	1	73	8	74	1	2,313	1,335	3,648	3,722
Over two years —Colitis ...	1	376	22	377	9	3,127	1,039	4,166	4,543
Ulceration	6	136	3	142	...	654	284	938	1,080
114a. Sprue	1	16	2	17	...	56	24	80	97
115. Ankylostomiasis
116. Diseases due to Intestinal Parasites— (a) Cestoda (Tænia)	60	1,103	120	1,163	63	7,488	7,978	15,466	16,629
(b) Trematoda (Flukes)	4	95	1	99	2	9,168	4,717	13,885	13,984
(c) Nematoda (other than Ankylostoma) Ascaris	3	2	...	5	...	27	9	36	41
Dracunculus...	4	...	4	...	60	36	96	100
Oxyuris	45	...	45	3	4,499	3,946	8,445	8,490
Strongylus	1	1	2	2
Trichina	11	...	11	1	242	147	389	400
Trichocephalus Dispar	...	1	...	1	...	9	2	11	12
(d) Coccidia	1	...	1	1
(e) Other parasites	5	3	8	8
(f) Unclassified
117. Appendicitis	44	1	44	...	62	8	70	70
118. A.—Hernia	44	3	47	3	43	15	58	102
B.—Intestinal obstruction ...	3	44	3	47	2	8	6	14	61
119. A.—Affections of the Anus, Fistula, etc. B.—Other affections of the Intestines— Enteroptosis	28	455	8	483	32	150	6	156	639
Constipation	2	12	7	14	1	14
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DISEASES	In-Patients					Out-Patients			Total Cases In- and Out-Patients
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females	Total	
		Admis- sions	Deaths						
120. Acute Yellow Atrophy of the Liver	...	1	1	1	...	...	...	...	1
121. Hydatid Tumour of the Liver	...	1	...	1	...	...	...	...	1
122. Cirrhosis of the Liver— (a) Alcoholic	...	11	5	11	1	7	1	8	19
(b) Other forms	...	37	15	38	3	11	4	15	53
123. Biliary Calculus	...	4	...	4	...	...	2	2	6
124. Other Diseases of the Liver— Abscess	...	4	9	36	4	13	...	13	49
Hepatitis	...	1	...	65	2	321	120	441	506
Cholecystitis	4	16	1	9	6	15	31
Jaundice	2	27	...	76	41	117	144
125. Diseases of the Pancreas	1	1	...	...	...	...	1
126. Peritonitis (of unknown cause)	4	7	...	...	...	...	7
127. Other diseases of the Digestive System	...	1	1	41	1	2,718	1,380	4,098	4,139
VII.—Diseases of Genito-Urinary System (non-venereal).									
128. Acute Nephritis	...	2	13	41	2	43	17	60	101
129. Chronic Nephritis	...	1	9	27	1	20	14	34	61
130. A.—Chyluria	1	...	4	...	4	5
B.—Schistosomiasis	...	6	...	218	26	2,163	300	2,463	2,681
131. Other Diseases of the Kidneys—Pyelitis, etc.	3	29	5	13	8	21	50
132. Urinary Calculus	1	6	1	4	2	6	12
133. Diseases of the Bladder— 1. Cystitis	...	1	1	47	1	139	40	179	226
2. Other Diseases	3	9	...	21	3	24	33
134. Diseases of the Urethra— (a) Stricture	...	5	5	104	9	118	1	119	223
(b) Other	...	10	1	42	1	99	8	107	149
135. Diseases of the Prostate— Hypertrophy	3	...	...	...	...	3
Prostatitis	4	1	12	...	12	16
136. Diseases (non-venereal) of the Genital Organs of Man— Epididymitis	...	3	...	64	2	34	...	34	98
Orchitis	...	3	...	200	8	853	...	853	1,053
Hydrocele	...	29	5	559	49	222	...	222	781
Ulcer of Penis	...	12	...	191	9	153	...	153	344
137. Cysts or other non-malignant Tumours of the Ovaries	3	27	3	...	11	11	38

Tables IV AND V—*contd.*
FOR ALL DENOMINATIONS.
RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932

DISEASES	In-Patients				Out-Patients			Total Cases In- and Out-Patients	
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospitals at end of 1932	Males	Females		Total
		Admis- sions	Deaths						
138. Salpingitis—Abscess of the Pelvis ...	...	32	1	32	3	...	9	41
139. Uterine Tumours (non-malignant) ...	...	31	1	31	2	...	8	39
140. Uterine Hæmorrhage (non-puerperal)	...	54	...	54	1	...	96	150	
141. A.—Metritis ...	...	...	...	...	...	...	...	...
B.—Other affections of the Female Genital Organs—	...	...	...	...	...	...	...	...
Displacements of the Uterus	1	23	...	24	...	...	145	169
Amenorrhœa ...	...	6	...	6	...	...	46	52
Dysmenorrhœa ...	1	27	...	28	...	...	119	147
Leucorrhœa ...	2	3	...	5	...	...	30	35
142. Diseases of the Breast (non-puerperal)	...	...	...	...	...	...	42	42
Mastitis ...	2	13	...	15	1	5	491	511	
Abscess of Breast ...	1	28	...	29	2	...	191	220	
VIII.—Puerperal State.									
143. A.—Normal Labour ...	...	...	...	...	...	...	...	...
B.—Accidents of Pregnancy—	5	391	4	396	10	...	63	459	
(a) Abortion ...	...	73	...	73	1	...	31	104
(b) Ectopic Gestation ...	...	2	1	2	...	...	...	2
(c) Other Accidents of Pregnancy ...	...	61	7	61	1	...	65	126
144. Puerperal Hæmorrhage	...	2	...	3	...	...	5	8
145. Other Accidents of Parturition	1	37	...	38	...	...	54	92
146. Puerperal Septicæmia	1	12	8	12	...	...	6	18
147. Phlegmasia Dolens ...	...	1	...	1	...	...	...	1
148. Puerperal Eclampsia	...	1	...	1	...	...	...	1
149. Sequelæ of Labour ...	1	...	1	1	...	...	2	3
150. Puerperal affections of the Breast ...	...	3	...	3	...	...	1	4
IX.—Affections of the Skin and Cellular Tissue.									
151. Gangrene	...	...	...	...	...	...	...	...
152. Carbuncle, Boil	...	...	...	...	...	...	...	...
153. Abscess	...	...	...	...	...	...	...	...
Whitlow	...	...	...	...	...	...	...	...
Cellulitis	...	...	...	...	...	...	...	...
Ulcer ...	...	...	...	...	...	...	...	...

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1932

DISEASES	In-Patients				Out-Patients			Total Cases In- and Out-Patients	
	Remain- ing in Hospitals at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospital at end of 1932	Males	Females		Total
		Admis- sion	Deaths						
XIV.—Affections produced by External Causes.									
165. Suicide by poisoning ... ..	...	1	...	1	...	...	...	1
166. Corrosive poisoning (intentional) ... ..	...	1	...	1	...	...	...	1
167. Suicide by gas poisoning ... ..	...	...	...	...	...	...	...	...
168. Suicide by hanging or strangulation ... ..	...	1	1	...	...	...	...	1
169. Suicide by drowning ... ..	...	...	...	...	...	...	...	...
170. Suicide by firearms ... ..	...	...	...	...	...	...	...	...
171. Suicide by cutting or stabbing instruments ... ..	...	1	...	1	...	...	...	...
172. Suicide by jumping from a height ... ..	...	1	1	...	...	...	...	1
173. Suicide by crushing ... ..	...	...	...	...	...	...	...	...
174. Other suicides ... ..	...	...	...	...	...	...	...	...
175. Food poisoning ... ..	...	25	...	25	...	...	7	32
176. Attacks of Poisonous Animals—									
Snake bite	1	46	2	47	3	77	10	134	
Insect bite ... ..	...	7	...	7	...	208	70	285
Others ... ..	...	...	...	...	...	...	...	...
177. Other accidental poisonings ... ..	...	13	...	13	2	7	2	22
178. Burns (by fire) ... ..	...	146	25	165	13	969	414	1,383
179. Burns (other than by fire)	19	31	2	31	...	251	91	342	
180. Suffocation (accidental) ... ..	...	...	...	...	...	1	1	2
181. Poisoning by gas (accidental) ... ..	...	...	...	...	...	2	2	2
182. Drowning (accidental) ... ..	...	1	...	1	...	...	...	1
183. Wounds (by firearms, war excepted)	4	27	5	31	3	16	1	17	
184. Wounds (by cutting or stabbing instruments)	26	710	21	736	29	7,355	997	8,352	
185. Wounds (by fall)	9	366	5	375	21	6,468	980	7,448	
186. Wounds (in mines or quarries) ... ..	...	6	...	6	...	54	1	55
187. Wounds (by machinery)	11	102	4	113	11	295	7	302	
188. Wounds (crushing, e.g. railway accidents, etc.)	3	109	4	112	8	1,316	179	1,495	
189. Injuries inflicted by animals, bites, kicks, etc.	10	153	9	163	14	391	68	459	
190. Wounds inflicted on active service ... ..	...	1	...	1	...	1	2	3
191. Execution of civilians by belligerents ... ..	...	...	...	...	...	...	...	...
192. A.—Over fatigue ... ..	...	...	...	...	...	...	...	...
B.—Hunger or thirst ... ..	...	7	...	7	...	...	...	7
193. Exposure to cold, frost, etc. ... ..	...	1	...	1	...	17	4	21

DISEASES	In-Patients				Out-Patients			Total Cases In- and Out-Patients	
	Remain- ing in Hospital at end of 1931	Yearly Total		Total Cases Treated	Remain- ing in Hospital at end of 1932	Males	Females		Total
		Admis- sions	Deaths						
194. Exposure to Heat— Heatstroke Sunstroke 195. Lightning stroke 196. Electric shock 197. Murder by firearms 198. Murder by cutting or stabbing instruments 199. Murder by other means 200. Infanticide (murder of an infant under one year) 201. A.—Dislocation B.—Sprain C.—Fracture 202. Other external injuries 203. Deaths by violence of unknown cause XV.—Ill-defined Diseases. 204. Sudden death (cause unknown) 205. A.—Diseases not already specified or ill-defined— Heart failure Ascites... .. Edema Asthenia Shock Hyperpyrexia Neuralgia and headache not yet dignosed... .. Pyrexia of uncertain origin Other ill-defined diseases Debility B.—Malingering Total cases treated by Medical Staff on tour Total cases treated by African Dispensers Total cases treated by Missionaries supplied with Government drugs and equipment GRAND TOTAL								

Annual Report of the Medical Laboratory, Dar es Salaam, 1932.

ADMINISTRATION.

This report covers the activities of the Medical Laboratory, Dar es Salaam, and the Vaccine Lymph Institute, Mpwapwa, for the year ending 31st December, 1932.

For reasons of economy, the report only includes essential administrative and routine features. Records of more specialized or research work will be published as far as possible in scientific journals or in other reports when completed.

STAFF.

Deputy Director of Laboratory Service — P. A. Clearkin.

Assistant Bacteriologist — H. J. O'D. Burke-Gaffney.

Medical Officers (seconded) — D. A. Skan; D. E. Wilson.

Analytical Chemist — W. Whitley.

Laboratory Assistant — H. Hammond.

Clerk — A. da Cruz.

Three African Laboratory attendants and five subordinates.

The Laboratory Division lost by retirement in August the services of Dr. P. A. Clearkin, who had been Deputy Director of Laboratory Service since 1925. During his tenure of office, Dr. Clearkin had been responsible for the establishment of the Vaccine Lymph Institute in Mpwapwa, and for extending the scope and activities of the Laboratory Service in many other directions.

Mr. J. W. McHardy, Entomologist, was seconded to the Malaria Research Unit at the beginning of the year and subsequently retired from the service.

These posts will not be filled in 1933.

Dr. Burke-Gaffney acted as Deputy Director of Laboratory Service from 17th August until the end of the year.

Dr. Skan arrived from leave on 29th January and was attached to the Laboratory, Dar es Salaam.

Mr. Hammond departed on leave on 14th February, returned on 22nd October and was posted to Dar es Salaam.

FINANCIAL.

It has been possible by the observation of strict economy to effect considerable savings in the administration of the Laboratory Service during the year. Apart from personal emoluments, which as a result of retirements, are now reduced by £2,050 per annum, the upkeep expenditure has been lessened in every direction. The vote "Upkeep of Laboratory" was reduced

from Shs. 4,000/- in 1931 to Shs. 2,060/- in 1932. The actual expenditure under this heading amounted to some Shs. 940/- less than estimated as a result of reducing expenses to their lowest limits compatible with efficiency. Indents on the Crown Agents for equipment amounted to about £240 as compared with £380 in 1931. A further economy has been established by ordering stock sera and vaccines in separate quarterly indents, instead of by a standing order, as hitherto. This has tended to reduce wastage from an accumulation of time-expired stock. There was a slight decrease of revenue from fees for laboratory examinations, which amounted to Shs. 1,341/74 as compared with Shs. 1,403/47 in 1931. A proposal has been put forward to increase the revenue from this source by reducing some of the more costly fees now charged. There is every indication that private practitioners will be encouraged thereby to increase considerably their requests for chargeable investigations.

BUILDINGS AND EQUIPMENT.

No additions to existing buildings and major equipment were made during the year. The proposal to take over the building now occupied by the Hospital Dispensary has been postponed on the grounds of economy, and hence there is no immediate prospect of extending the present somewhat inadequate working space.

LIBRARY AND MUSEUM.

It has been found necessary to make a further reduction in the number of periodicals and books of reference. Whilst inevitable, this is greatly to be regretted not only by the restriction of references available at present, but because of the future loss of continuity in library volumes.

With the increase in pathological and post-mortem work a number of interesting and instructive specimens have accumulated. These have been preserved in the hope that they may form the nucleus of a museum and thus be accessible as permanent records at some future date when space becomes available.

INSTRUCTIONAL COURSES FOR AFRICAN ASSISTANTS.

The three months' course in laboratory methods for African dispensers was continued during the year. Nine African dispensers and one orderly attended the course, and were subsequently posted to stations.

With the establishment of the Medical School at the Sewa Hadji Hospital, Dr. Burke-Gaffney was appointed to deliver a course of twelve lectures in laboratory methods to the pupils. A formal course of lectures was prepared and printed, and copies are distributed to each pupil in both the Medical School and the practical class at the laboratory, in addition to personal instruction. Twelve pupils attended the first series of lectures given at the Sewa Hadji Hospital.

The classes have proved very successful, and the majority of the students have displayed a remarkable keenness and interest in the work.

POST-MORTEM EXAMINATIONS.

During the year, it was ruled that in future all post-mortem examinations required in Dar es Salaam and District, whether of a purely medical or of a forensic nature should be performed by the pathologists in the laboratory. As a result, it is now possible to keep complete records, both macroscopic and microscopic, to record normal weights and appearances of organs, and to collect a large amount of valuable pathological information. The arrangement is

a most satisfactory one. It has relieved medical officers of the burden of a responsibility for which they can rarely spare sufficient time from the wards, and which is not without danger from the point of view of carrying infection into the hospital. It also encourages the performance of a large number of post-mortems, with the complete pathological investigations undertaken by full time pathologists. The system has already proved its value in the correlation of naked eye and microscopic findings.

CONTRIBUTIONS TO SCIENTIFIC LITERATURE BY MEMBERS OF THE STAFF.

“The classification of the Coli-Aerogenes group of Bacteria in relation to their Habitat, and its application to the Sanitary Examination of water supplies in the Tropics”, by H. J. O’D. Burke-Gaffney. *J. Hygiene*, xxxii, 1, 1932.

“The types of Coliform Bacteria prevalent in urine and their significance with special reference to the sanitary aspects”, by H. J. O’D. Burke-Gaffney (under publication).

ACKNOWLEDGMENTS.

Grateful acknowledgments are made to the following, for the benefit of advice, opinions, literature, and assistance in many other directions:—

The Director of Veterinary Service, Tanganyika Territory.

The Deputy Director of Laboratory Service, Kenya Colony.

Dr. H. G. Wiltshire, Pathologist, Zanzibar.

Colonel W. W. Clemesha, Ceylon.

Sir Alexander Houston, Metropolitan Water Board.

Dr. J. L. Pawan, Government Bacteriologist, Trinidad.

Dr. Charles E. Skinner, University of Minnesota;

and the many administrators of Government and Commercial Laboratories who have provided copies of their Annual Reports.

The report is divided into the following sections:—

1. Routine Examinations.
2. Special Investigations.
3. Report of the Vaccine Lymph Institute.
4. Report of the Analytical Chemist.
5. Appendices.

PART I.

ROUTINE DIVISION.

The policy has been to conduct the laboratory primarily for routine purposes, the aim being to provide full clinical and Public Health laboratory service for the Hospitals, Dispensaries, Health Units and private practitioners in Dar es Salaam, and all available laboratory facilities for the medical centres throughout the Territory. Research for the most part must now be confined, owing to considerations of economy, staff and communication, to problems of immediate practical importance, having a bearing on, and being conducted through the medium of collective routine investigations. It has not been possible to devote much time to special work, owing to the more pressing need of preserving the primary functions of the laboratory.

Despite depleted staff and funds, however, it has been found possible to maintain the routine work at a standard not below that of previous years. It is satisfactory to be able to record that the amount of material received from out-stations has increased. The increase has been mainly in respect of pathological and serological material.

A few additions to the permanent routine systematic investigations were made during the year. The principal innovations were the institution of a regular weekly bacteriological examination of the local water supplies, the undertaking of all autopsies by the laboratory staff, and the daily record of Katathermometer readings. Otherwise the routine division was conducted on similar lines to those recorded in previous years. In the present report, special investigations are recorded as they arise under the appropriate routine headings with which they are associated.

The total number of routine examinations amounted to 16,862, an increase of 1,754 over last year's figures.

The findings might conveniently be considered under the following headings:—

- A. Parasitology.
- B. Serology.
- C. Other blood examinations.
- D. General examinations.
- E. Bacteriology.
- F. Public Health.
- G. Pathology and Morbid Histology.
- H. Medico-Legal.
- I. Miscellaneous.

A.—PARASITOLOGY.

(1) *Blood Films.*

Blood films for parasites as usual made up a large proportion of the specimens examined.

6,558 films were received of which 1,569 contained parasites, as shown below:—

	No. Examined		Malaria		Relapsing Fever		Trypanosomiasis		Filariasis
European	768	...	134	...	1	...	0	...	0
Asiatic	1,415	...	351	...	0	...	0	...	4
African	4,375	...	1,017	...	14	...	2	...	46
TOTAL	6,558	...	1,502	...	15	...	2	...	50

(a) *Malaria.*

The malaria parasite findings were lower than have been recorded since 1927, the European percentage being the lowest recorded in the twelve years of the present administration. The yearly percentages are shown in Appendix 1.

The percentage findings for each race during 1932 were the following:—

		Number examined	Percentage positive
European	...	768	17
Asiatic	...	1,415	24
African	...	4,375	22

The monthly findings, together with the rainfall in inches are shown in the table on page 5.

For clinical purposes no differentiation of species was made, as this is recorded by the Malaria Research Unit.

Months	Rainfall in inches	Europeans				Asiatics				Africans			
			number examined	Number positive	% positive		Number examined	Number positive	% positive		Number examined	Number positive	% positive
January ...	2.4 ...		49	7	14	...	126	40	31	...	335	80	24
February...	4.8 ...		52	14	15	...	85	15	17	...	287	69	24
March ...	5.6 ...		59	9	14	...	86	13	15	...	367	75	20
April ...	13.3 ...		97	17	17	...	120	25	20	...	312	54	14
May ...	6.7 ...		91	16	17	...	139	44	31	...	406	103	23
June ...	1.6 ...		119	29	24	...	155	65	41	...	364	103	28
July ...	0.7 ...		69	12	17	...	150	40	34	...	281	68	24
August ...	0.4 ...		45	9	20	...	99	25	25	...	368	111	24
September.	1.4 ...		36	4	11	...	95	22	23	...	398	107	27
October ...	0.08 ...		58	10	17	...	111	24	21	...	378	91	24
November..	0.29 ...		50	3	6	...	131	24	18	...	420	87	21
December..	6.8 ...		43	4	9	...	118	14	12	...	359	69	20
TOTAL ...	43.67 ...		768	134		...	1,415	351		...	4,375	1,017	

This is shown graphically in Appendix 2.

(b) *Relapsing Fever.*

There is nothing of note to record under this heading.

(c) *Trypanosomiasis.*

No European specimen was received.

(d) *Filariasis.*

The incidence of *Mf. bancrofti* is higher than in previous years. The significance of this has not been determined as yet.

(2) *Fæces.*

One thousand one hundred and eighty-six specimens were received, a large increase over previous years : 739 were negative.

	Europeans			Asiatics			Africans			Total
Entamœba histolytica	...	5	...	0	...	0	...	0	...	5
" " cysts	...	0	...	0	...	1	...	1	...	1
Flagellates	...	1	...	0	...	3	...	4	...	4
Ova of ancylostoma	...	14	...	9	...	355	...	378	...	378
" " strongyloides	...	0	...	0	...	43	...	43	...	43
" " tænia	...	0	...	0	...	1	...	1	...	1
" " ascaris	...	0	...	1	...	4	...	5	...	5
" " trichuris	...	1	...	0	...	3	...	4	...	4
" " oxyuris	...	1	...	0	...	2	...	3	...	3
" " schistosoma mansoni	...	0	...	0	...	3	...	3	...	3
TOTAL	...	22	...	10	...	415	...	447	...	447

It will be noted that ova of *Ancylostoma* accounted for the largest number of positive results.

An unusual finding was the presence of ancylostome ova in Europeans. The discovery of ova in one European child resulted in an intensive examination of some fifty other European children with the results shown. All responded well to treatment with oil of *Chenopodium*.

(3) *Urine.*

Three hundred and sixty-eight specimens were examined for *S. hæmatobium*, 105 were positive, and with one exception, all occurred in natives :—

	<i>S. hæmatobium</i> ova present		Negative		Total
Europeans	0	...	2	2
Asiatics	1	...	14	15
Africans	104	...	247	351
TOTAL	105	...	263	368

B.—SEROLOGY.

(1) *The Wassermann Reaction.*

The reaction was performed with 387 sera, with the following results :—

+	...	...	...	169
±	...	...	...	32
—	...	...	...	186

The reaction was also carried out with 17 specimens of cerebro-spinal fluid as under :—

+	...	...	...	7
±	...	...	...	8
—	...	...	...	2

(2) *The Kahn Test.*

The Kahn test was carried out in parallel with the Wassermann in 293 instances. Some 1,300 combined tests have now been investigated since 1928, and the value of the Kahn test is increasingly apparent. The results were as follows :—

+	...	...	...	117
±	...	...	...	25
—	...	...	...	151

(3) *Agglutination Tests.*

These were employed both for the serodiagnosis of the Enterica and allied fevers, and for the identification of unknown organisms. For the former purpose, 99 specimens of serum were received, of which 56 were negative. The high percentage of positives may be accounted for largely as a result of a Typhoid Fever epidemic in Mbeya. The results were as follows :—

	Europeans		Asiatics		Africans		Total
T	7	...	5	...	13	25
A	0	...	1	...	0	1
B	0	...	0	...	0	0
TAB	4	...	0	...	10	14
TA	2	...	0	...	0	2
TB	0	...	0	...	1	1
AB	0	...	0	...	0	0
M	0	...	0	...	0	0
Negative	6	...	9	...	41	56
TOTAL	19	...	15	...	65	99

In the table—

T	signifies	E.	typhi agglutination.
A	„	S.	paratyphi agglutination.
B	„	S.	schottmulleri agglutination.
M	„	Br.	melitensis agglutination.

The absence of Br. melitensis agglutination is still noticeable.

(4) *Blood grouping.*

Sera for blood grouping were obtained during the year, and an attempt is being made to type volunteers of all races. Only ten have been typed to date. Moss's classification is adopted in the following list :—

				Group							
Total				1	2	3	4				
Europeans	...	...	7	...	0	...	6	...	0	...	1
Asiatics	...	...	2	...	0	...	0	...	0	...	2
Africans	...	...	1	...	0	...	0	...	0	...	1
TOTAL				...	0	...	6	...	0	...	4

(5) *Precipitin Tests.*

These are at present only used for forensic tests for human blood and are referred to under that heading ; but owing to variable results, some work has been done in studying different forms of antiserum and different technical methods. As a result it is hoped to prepare antiserum locally in the future.

C.—OTHER BLOOD EXAMINATIONS.

(1) *Blood Culture.*

Ten only were performed, six of which were from European patients, one from an Asiatic and three from Africans. From one European patient E. typhi was isolated, and from another A. faecalis.

(2) *Total Cell Counts (with Hæmoglobin estimation).*

These were carried out in 18 cases, nine being Europeans, seven Asiatics and two Africans.

(3) *Differential Leucocyte Counts.*

One hundred and twenty-one counts were made as under :—

Europeans	...	...	53
Asiatics	...	...	26
Africans	...	...	42
TOTAL			121

The only feature of interest was one case of chronic lymphatic leukæmia in an African. Eosinophilia is common in natives, and is doubtless due to helminthic infestation.

(4) *Polynuclear Counts (Cooke)* were performed where indicated, and often proved of considerable value. Twenty-six counts were made :—

Europeans	...	...	19
Asiatics	...	...	6
Africans	...	...	1

D.—GENERAL EXAMINATIONS.

(1) *Fæces*.

General examinations of fæces amounted merely to examinations for blood, pus, crystals, etc., during routine microscopic examination.

(2) *Urine*.

General examination of the urine was carried out in 469 instances. There is nothing noteworthy to record in this connection. The principal findings are shown below. 161 were pathological.

				Europeans		Asiatics		Africans		Total
Albumin	...	...	...	25	...	14	...	56	...	95
Pus cells	...	...	...	0	...	0	...	45	...	45
Sugar	...	...	...	11	...	6	...	0	...	17
Hæmoglobin	...	...	...	2	...	2	...	0	...	4
TOTAL				38	...	22	...	101	...	161

(3) *Miscellaneous*.

The following other general examinations were performed :—

Gastric juice	...	...	...	1
Blood for Van den Bergh	...	...	...	1
Cerebrospinal fluid	...	...	...	9
Milk human for pus	...	...	...	2
„ cow „ „	...	...	...	1

Other biochemical examinations are discussed in the report of the Analytical Chemist.

E.—BACTERIOLOGY.

(1) *Fæces*.

Sixty-six cultures of fæces from suspected cases of intestinal infection were made. No bacteria of the typhoid-dysentery group were found, but non-lactose fermenting bacteria were isolated in 17 instances, as shown below :—

				Europeans		Asiatics		Africans		Total
“Paracolon bacilli”	...	...	...	2	...	0	...	2	...	4
Alkaligenes group	...	...	...	2	...	3	...	1	...	6
B. pyocyaneus	...	...	...	2	...	0	...	5	...	7
B. coli only	...	...	...	12	...	5	...	32	...	49
TOTAL				18	...	8	...	40	...	66

The comparative prevalence of non-lactose fermenting bacteria of the colon variety is being made the subject of a special study, which will be published elsewhere on completion.

So as to confirm previous results (*J. Hygiene*, 1932) an examination of 500 Coliform bacteria was made with a view to estimating the prevalent types in normal fæces, on the basis of certain classifications.

The cultures were classified in two groups, (1) by McConkeys division into four groups, according to the fermentative action of the organisms on Dulcitate and Saccharose; and (2) by means of the combined Methyl Red and Citrate tests into “coli”, “aerogenes”, “intermediate” and “atypical”. The results in percentages are shown as follows :—

		Percentages McConkeys group				Percentages Methyl Red-Citrate				
		I	II	III	IV	Indol +	Coli	Aero- genes	Inter- mediate	Aty- pical
Number of cultures ... } 500	3	—	70	27	...	94	87	8	4	1

It will be observed that by McConkeys classification 70% belonged to the “*B. coli communior*” type, whilst by the Methyl Red-Citrate method 87% “were true *B. coli*”.

The significance of these findings is discussed in a paper now under publication.

(2) *Urine.*

Sixty routine cultures of urine were made, with the following results :—

				Europeans		Asiatics		Africans		Total
B. pyocyaneus	...	...	...	0	...	0	...	1	...	1
Bact. coli	...	...	...	11	...	1	...	2	...	14
Bact. ærogenes	...	...	...	1	...	0	...	1	...	2
Alkaligenes group	...	...	...	6	...	0	...	15	...	21
“Paracolon” bacteria	...	...	...	2	...	0	...	1	...	3
Negative	...	...	...	18	...	0	...	1	...	19
TOTAL				38	...	1	...	21	...	60

A special study was made of 1,000 coliform bacteria isolated from urine in order to determine the prevailing types. This was carried out in conjunction with the investigation referred to in connection with faeces, and the cultures were classified on the same basis. The percentage results were as follows :—

PERCENTAGES OF CULTURES SHOWING									
	Percentages McConkeys group				Indol +	Percentages Methyl Red-Citrate			
	I	II	III	IV		Coli	Aero- genes	Inter- mediate	Aty- pical
Number of cultures ... } 1,000	18	7	27	48	...	43	33	52	10 5

It will be seen that 75% of cultures belonged to the “*communior*” and “*aerogenes*” variety, and on the basis of the Methyl Red-Citrate tests 52% were *aerogenes*. This confirms previous findings. It is curious that whilst the “*aerogenes*” type only appear as 8% of coliform bacteria in faeces, they account for 52% in urine. The problem is fully discussed in a communication to the scientific press.

(3) *Sputum.*

One thousand one hundred and nine sputum were examined, of which 700 were negative, as shown below :—

	M. tuberculosis		Other bacteria		Negative		Total	
Europeans	3	...	1	...	36	...	40
Asiatics	12	...	2	...	158	...	172
Africans	391	...	0	...	506	...	897
TOTAL	406	...	3	...	700	...	1,109

Pneumococci were the sole organisms in one European and one Asiatic specimen, and a monilia in one Asiatic specimen.

A special study of the flora of the upper Respiratory Tract in natives is being carried out by Dr. Skan, who is also investigating the incidence of *M. tuberculosis* in apparently healthy natives.

(4) *Nasal Scrapings and Skin Nodules.*

Two hundred and forty-three specimens were received from African patients, 137 of which showed the presence of *M. lepræ*.

(5) *Throat Swabs.*

Forty-three throat swabs were examined, with the following results:—

	C. diphtheriae		Monilia		Fusiform bacilli		Negative		Total
Europeans	...	0	...	2	...	3	...	20	25
Asiatics	...	1	...	1	...	0	...	7	9
Africans	...	1	...	0	...	2	...	6	9
TOTAL	...	2	...	3	...	5	...	33	43

(5) *Urethral and Vaginal Smears:* for the presence of Gonococci:—

	Positive				Negative				Total
Europeans	6	...	21	...	...	27
Asiatics	4	...	7	...	...	11
Africans	17	...	30	...	...	37
TOTAL	17	...	58	...	...	75

(6) *Pus from Abscesses, Ulcers, etc.*

Forty-nine pus specimens from different sources were examined. There was nothing of special interest noted:—

	Total	B. anthracis	Staphylococci or Streptococci	Pneumococci	Bact. coli	Spirochaetes	Alkaligenes	B. Pyocyaneus	Negative
Europeans	20	0	15	0	1	0	1	2	1
Asiatics	6	0	3	0	0	0	0	0	3
Africans	23	1	8	2	0	4	0	3	5
TOTAL	49	1	26	2	1	4	1	5	9

(7) *Pathological Fluids.*

Twenty-eight were examined:—

	Cerebrospinal	Peritoneal	Pleural	Synovial	Conjunctival	Total
Europeans	0	0	1	0	1	2
Asiatics	2	0	2	0	0	4
Africans	11	4	6	1	0	22
TOTAL	13	4	9	1	1	28

General and bacteriological examination showed nothing of special interest. Pneumococci were found in a synovial fluid from an African, and meningococci in one cerebrospinal fluid.

(8) *Vaccines.*

Twenty-one autogenous vaccines were prepared :—

	Staphylococci		Bact. coli		Alkaligenes		Streptococci		B. pyocy- aneus		Pneu- mococci	
Europeans ...	9	...	3	...	2	...	3	...	1	...	2	
Asiatics ...	1	...	0	...	0	...	0	...	0	...	0	
Africans ...	0	...	0	...	0	...	0	...	0	...	0	

F.—PUBLIC HEALTH.

(1) *Waters.*

Forty water samples were examined. A weekly examination of the local supplies is now undertaken regularly. The results are shown in Appendix 3.

(2) *Foodstuffs.*

Bacteriological examination of the following foodstuffs was undertaken :—

Sodawater ...	...	...	...	6
Butter ...	...	...	...	2
Milk ...	...	...	...	1
Cheese ...	...	...	...	1
Ham ...	...	...	...	1
Beef ...	...	...	...	1
Tomato Paste ...	...	...	...	1
Condensed Milk ...	...	...	...	1

(3) *Rats.*

Rats were examined daily for the presence of *P. pestis*. 3,040 were examined, all of which were negative.

A number of rats of different varieties were received for preparation and despatch for identification to the Transvaal Museum. A large "hamster" rat of the Genus *Cricetomys gambianus* was received on two occasions, once from Arusha, and once from Mwanza.

(4) *Katathermometer.*

Katathermometer readings were taken daily in the laboratory and correlated with temperature and rainfall. The monthly records will be found in Appendix 4.

Further discussion of Public Health samples will be found in the Chemist's Report.

G.—PATHOLOGY AND MORBID HISTOLOGY.

(1) *Autopsies.*

As already referred to, the undertaking of all post-mortem examinations in the district was taken over by the laboratory staff in August. This has already proved its value and will do so more fully as material accumulates. A complete examination, with section where indicated, can now be made of each case. Furthermore, the normal weights and appearances of organs, gradually accumulating, will provide an amount of very valuable information. Several interesting specimens have already been received and full records kept. The specimens have been preserved for record purposes.

This arrangement came into force late in the year, and hence only 19 autopsies were performed, the majority of which were of medico-legal importance. The findings are shown in the following list :—

Cause of Death							Race	Number
Lobar pneumonia	...	...	...	...	...	...	African	4
Nephritis	...	...	...	...	...	...	"	1
Toxæmia	...	...	...	...	...	...	"	1
Cirrhosis of liver	...	...	...	...	...	...	"	1
Carcinoma of liver	...	...	...	...	...	...	"	1
" cervix uteri	...	...	...	...	...	...	"	1
Cerebral hæmorrhage, Traumatic	...	...	...	...	...	...	"	3
Drowning	...	...	...	...	...	...	"	2
Gunshot wound, neck	...	...	...	...	...	...	"	1
Revolver wound, lung	...	...	...	...	...	...	European	1
" " head	...	...	...	...	...	...	African	1
Stab wound, chest	...	...	...	...	...	...	"	1
Poisoning, chemical	...	...	...	...	...	...	European	1

(2) Morbid Histology.

Two hundred and thirty-eight pieces of morbid tissue were received from 112 individuals, 35 of these were malignant neoplasms, and 13 benign growths. The findings were as follows :—

1. Neoplasms.

(a) Benign :—

Type	Position				Race	Number
Papilloma	Anus	European	1
"	Penis	African	1
Adenoma	Hypophysis	"	1
Myeloma	Tendon sheath	"	1
Myxoma	Jaw	"	1
Fibroma	Uterus	"	2
"	Leg	"	1
"	Face	"	1
Fibroadenoma	Breast	"	1
Angioma	Neck	"	1
Lipoma	Forehead	"	1
"	?	"	1
TOTAL						13

Carcinomata.

(b) Malignant :—

Type	Position				Race	Number
Squamous Epithelioma	Leg	African	1
"	Hand	"	2
"	Bladder	"	2
"	Scalp	"	1
"	Penis	"	1
"	Cervix uteri	"	2
"	Branchiogenetic	"	1
TOTAL						10

Type	Position	Race	Number
Adenocarcinoma	Pancreas	African ...	1
„	Colon	„ ...	1
„	Uterus	Asiatic ...	1
„	Liver	African ...	3
„	Breast	„ ...	1
TOTAL			7

Sarcomata.

Type	Position	Race	Number
Lymphosarcoma	Retroperitoneal	African ...	1
„	Stomach	„ ...	1
TOTAL			2

Round celled Sarcoma	Jaw	African ...	1
„ „ „	Testicle	„ ...	1
„ „ „	Intestine	European ...	1
„ „ „	Abdominal wall	„ ...	1
„ „ „	Femur	African ...	1
„ „ „	Humerus	„ ...	1
„ „ „	Kidney	European ...	1
TOTAL			7

Alveolar Sarcoma	Abdomen	African ...	1
Melanotic Sarcoma	Finger	„ ...	2
Leucosarcoma	Muscle	„ ...	1
Spindle celled Sarcoma	Abdominal wall	„ ...	1
TOTAL			5

Teratoma	Testicle	African ...	1
„	Chest	„ ...	1
Parotid tumour	„	„ ...	1
Glioma	„	„ ...	1

Total Neoplasms:—

Benign	13
Malignant:	
Carcinoma	17
Sarcoma	14
Others	4
TOTAL	48

H.—MEDICO-LEGAL.

Specimens of a medico-legal nature are discussed under Bacteriological and Pathological Examinations and in the Report of the Analytical Chemist. The following examinations were performed under this heading :—

Tests for human blood	...	...	...	18	...	6
„ „ seminal fluid	...	...	...	13	...	0
Vaginal smears for gonococci	...	...	...	9	...	4
Urethral „ „ „	...	...	...	4	...	3
TOTAL				44	...	13

I.—MISCELLANEOUS.

Veterinary.

Fifteen specimens were examined for the Veterinary Officer, Dar es Salaam, as under :—

Blood, various	...	...	...	10
Pus: Dog	...	...	...	1
Bullock	...	...	...	1
Meat	...	...	...	1
Milk for tubercal bacilli	...	...	...	1
Organs from dog	...	...	...	1
TOTAL				15

Twelve ticks were examined for infectivity. None were found to harbour *Borrellia*.

Six scrapings for fungi were made in Europeans, all were negative.

PART II.

SPECIAL INVESTIGATIONS.

Attention has already been drawn to the fact that, owing to the limited facilities for serious research work at present, special investigations have been confined to problems directly concerned with routine. The aim has been to improve the scope and value of routine investigations by studying individual and collective results with a view to discovering how they can be used to best advantage. In this way, a number of problems concerning technique, the incidence of various conditions in health and disease and the practical application of laboratory findings have arisen. Some of these investigations have yielded sufficient information to justify publication in the scientific press; others are as yet incomplete, but it is hoped that the results will help to form a useful groundwork for more comprehensive investigations at a later date.

Reference has been made in the routine report to some of these problems. It is not regarded as advisable owing to condition of space to attempt to discuss them in detail. The following summary of the principal problems which are being studied will, however, give some indication of the directions in which investigations were made :—

Lesions of the Central Nervous System following the introduction of Vaccine Virus.

The Incidence and Types of Coliform Bacteria in Urine.

The Non-lactose fermenting bacteria encountered in fæces, their classification and significance.

The technique of the precipitin test for human blood.

The flora of the upper respiratory tract of Africans in health and disease.

The incidence of *M. tuberculosis* in apparent healthy natives.

The keeping properties of Vaccine Lymph under conditions of travel.

A number of other special studies are referred to in the Report of the Analytical Chemist.

Field work as such is unfortunately not practicable. This is regrettable, in that it limits the territorial functions of the laboratory. With the main laboratory situated in Dar es Salaam and a limited staff, many of the important field problems must necessarily remain unsolved at present. This is largely compensated for by the activities of the special laboratories associated with the department, i.e. Malaria, Tuberculosis and Trypanosomiasis research; but it is felt that there is still abundant material awaiting bacteriological and pathological investigation connected with the commoner epidemiological problems.

It was found possible, however, to undertake a few investigations outside the main laboratory. Before his retirement, Dr. Clearkin spent some months in the Vaccine Lymph Institute, Mpwapwa, for the purpose of studying the possibilities of further improvement in the organization and routine of lymph production. Dr. Skan travelled to Moshi during the year, carrying a supply of vaccine lymph which was titrated en route, in order to study the effects of travel on the potency of the lymph. At the time of writing, he has made preparations for a tour to be undertaken early in the new year, of five stations in the Territory. The purpose of this journey is to collect quantities of blood serum from selected individuals with a view to despatching them to the Rockefeller Foundation for protection and immunity tests against Yellow Fever. This has been undertaken in accordance with the suggestions proposed at the recent conference held under the auspices of the League of Nations Health Organization in Capetown.

PART III.

REPORT OF THE VACCINE LYMPH INSTITUTE.

STAFF.

D. E. Wilson, Medical Officer, 1st January to 31st December.

John Robert, African Laboratory Attendant, 1st January to 31st December.

In addition to the above staff there were five African subordinates.

During the year the Deputy Director of Laboratory Service, Dr. P. A. Clearkin, spent a period of about three months at the Institute.

FINANCIAL.

The total cost of upkeep including all salaries, stores, and animals was £1,048 17s. 0d. The value of lymph sold to other Governments was £70 5s. 0d. therefore the actual cost of upkeep of the Institute was £978 12s. 0d.

BUILDINGS.

No additions made.

MANUFACTURE.

Eighty-five calves passed through the Institute during the year and of these lymph was collected from eighty-three, the remaining two being returned owing to some minor ailment. No calf died in the Institute.

	1929	1930	1931	1932
Calves used	131	243	162	83
Total pulp in grammes ...	2,984.5	4,624.2	3,347	2,612.8
Average yield per calf ...	22.8	19.0	20.6	31.5
Minimum yield from a calf ...	2.3	—	5.5	11.8
Maximum yield from a calf ...	66.6	—	44.0	75.0

As in former years calves have been hired from the local natives at a cost of five shillings each. Owing to the large reserve stock at the end of 1931 and the decrease in demands for vaccine lymph, manufacture was reduced considerably during the year. On account of lack of space in the refrigerator it is only possible to keep a reserve stock of approximately one million doses. This is considered sufficient for the requirements of the Territory.

No change was made in the technique of manufacture. Before issue the lymph is kept for at least a year in the refrigerator at an average temperature of three degrees centigrade. The lymph is tested at various periods during storage for freedom from pathogenic micro-organisms by ærobic and anærobic culture. The purity of the lymph at the time of issue more than conforms to that required in Great Britain by the Therapeutic Substances Regulations (1927). All the lymph that was issued had a titre of 1/10,000. Titrations were carried out on monkeys by the intradermal insertion of 0.1c.c. of various dilutions. During the year approximately one million doses were manufactured.

DISTRIBUTION.

The number of doses issued was less than in 1930 and 1931 but it was still large and I think the figure may be taken as the annual number of doses required by the Territory provided there is no extensive outbreak of smallpox. The following table shows the annual issue figures:—

1928	388,698 doses.	1931	1,003,800 doses.
1929	389,500 „	1932	596,250 „
1930	1,613,350 „		

List of stations with amounts received during the year.

Kilosa	54,000 doses.	Mwanza	38,000 doses.
Iringa	87,600 „	Namanyere	2,400 „
Mkalama	5,600 „	Shinyanga	1,200 „
Morogoro	29,500 „	Singida	6,000 „
Tabora	50,550 „	Ifakara	4,000 „
Kigoma	6,200 „	Songea	32,400 „
Karema	1,750 „	Uvinza	1,000 „
Sumbawanga	15,000 „	Shanwa	200 „
Manyoni	8,000 „	Njombe	12,000 „
Mahenge	14,400 „	Mpwapwa	1,000 „
Kondoa-Irangi	4,800 „	Tukuyu	30,000 „
Mbeya	27,000 „	Kibondo	1,400 „
Biharamulo	6,000 „	Kahama	1,500 „
Dodoma	20,000 „	Nzega	8,800 „
Kibaya	1,200 „	Moshi	13,000 „
Bukoba	12,000 „	The Laboratory,	
Malangali	7,000 „	Dar es Salaam	90,000 „
Musoma	1,600 „		

Stations on the coast and Tanga Line are mostly supplied from the Medical Laboratory, Dar es Salaam. Lymph in bulk is sent to Dar es Salaam for issue.

Moshi now receives its supply by air mail thus ensuring a fresh supply for the Northern Province.

During the year sixty requests for lymph were received by telegram. These accounted for 278,000 doses.

RESULTS.

A great many of the people vaccinated are never seen again. Results are judged by reports where vaccinations are done and observed by European officers. The Senior Health Visitor, Kahama Maternity and Child Welfare Clinic, reports as follows :—

“The results are I consider very good indeed being almost 96 per cent. positive and in some cases 98 per cent.”

D. E. WILSON,
Medical Officer.

PART IV.

REPORT OF THE ANALYTICAL CHEMIST.

Six hundred and sixty-three specimens were examined, details of which are set out below :—

MEDICAL DEPARTMENT.

Fifty-four samples were examined in all. Various tinctures bought in Dar es Salaam appeared to be of inferior quality, and in this connection four samples of rectified spirit and two samples of tincture of iodine were examined. It was found that the spirits, and the spirit used in the preparation of the tinctures did not comply with the requirements of the “British Pharmacopœia” in that they gave a cloudy mixture with water, left a residue on evaporation, and had a disagreeable odour. The matter was brought to the notice of the manufacturers and retailers.

A series of seven exhibits from Morogoro were examined for poisons, and arsenic was found in all but one. In another case from Morogoro several people had been seriously poisoned apparently through natives introducing two different kinds of plants into the stream from which the water-supply was drawn, with the object of killing fish. In three specimens of stomach washings, etc., no poisonous substance was detected by chemical analysis, nor was anything found by the chemical analysis of specimens of the two plants, one of which appeared to be *Euphorbia candelabrum*. Watery decoctions of the two plants and also of freshly cut *Euphorbia candelabrum*, were given by the mouth to fasting monkeys in various doses, but in no case was any apparent effect produced.

In this country in the examination of parts of plants, native medicines, etc., for poisonous properties the effects produced on laboratory animals often have to be relied on rather than chemical analysis, and the question arises as to how far the effect on monkeys resemble the effects produced on man, and for this reason work is being started to study the effects of various poisons, particularly those likely to be met with in Tanganyika, on monkeys, in various doses.

One alleged poisoned arrow was received from Musoma. The shaft of the arrow for a few inches next the head was coated with black sticky material and a watery decoction of this material proved very rapidly fatal to frogs, rats, guinea-pigs and monkeys, in very small doses. Chemical examination of the material showed that the poisonous principle was probably a glycoside, but the chemical tests were not definite enough to identify the poison. Other poisoned arrows are referred to under the Police Department heading. A supposed poisonous bark from Musoma produced no effect on a monkey, as also did three parts of plants from Singida. Three other specimens of stomach contents, etc., sent for analysis for poisons, gave negative results.

The following were also examined :—

Five samples of water from the Arusha water-supply, four samples of urine, three samples of urine for quinine, four human milks, four samples of blood for blood sugar content, one gastric contents for free hydrochloric acid, one sample of quinine bisulphate, two samples of sand and two of water.

THE HEALTH OFFICE, DAR ES SALAAM.

Township Rule No. 35 has been amended so that no milk shall be sold containing less than 8·5 per cent. of non-fatty solids, previously no minimum figure had been fixed for the non-fatty solids of milk. One hundred and ninety-seven samples of milk taken in Dar es Salaam Township were analysed, none of them contained less than three per cent. of fat, and only seven were deficient in non-fatty solids, and the chemical composition of the milk supplied in Dar es Salaam is very satisfactory. The question of the control of milk supply in up-country stations was considered, and it was recommended that the larger stations should be provided with Gerber milk-testers.

The new automatic telephone exchange in Dar es Salaam is a closed building in which the temperature and humidity of the air have to be carefully controlled. At first there were several complaints of malaise by people working in it, but analysis of the air showed that this was not due to excessive carbon dioxide.

Three samples of local butter were examined, and all were genuine, and two samples of lemon squash were examined for preservatives, both contained sulphur dioxide.

SPECIMENS FOR CHEMICO-LEGAL PURPOSES SENT IN BY MAGISTRATES, POLICE OFFICERS, ETC.

Four alleged poisoned arrows were received. Two of them were of similar appearance, the blade being clean and bright but the shaft immediately behind the blade coated for a few inches with black sticky material. A watery solution of this material killed frogs, rats, guinea-pigs and monkeys a few minutes after injection, and in very small doses. The material was free from alkaloids and chemical analysis indicated that the poisonous principle was probably a glycoside, but it could not be identified chemically. The chemist is in communication with various authorities on this subject. The other two arrows were of different appearance, both the blades and shafts being clean, and no effect was produced on laboratory animals when a decoction of scrapings from the blades were injected into them.

A specimen of brown powder from Tanga was entirely powdered datura seeds, a bottle of water from Maswa contained nearly four grams of white arsenic; a bottle alleged to have been used for holding gold amalgam gave no evidence of containing gold or mercury on analysis; two specimens of internal

organs showed mercury in small amounts. An alleged poison from Mwanza said to consist partly of crocodiles' intestines, had no effect when fed to monkeys even in large doses. A sample of food from Kigoma, supposed to contain a powerful hypnotic, revealed nothing on chemical examination and had no effect on laboratory animals.

Fourteen other exhibits sent for analysis for poisons consisting of native "dawas", internal organs, etc., were negative. One sample of proprietary cigarettes contained 28 per cent. of belladonna alkaloids.

Eighteen exhibits were tested for bloodstains and the alcoholic strength of nine liquors determined.

PUBLIC WORKS DEPARTMENT.

The work was almost entirely in connection with various water supplies.

Trials were made with various precipitants for clearing the Dodoma water-supply; and water from the underground dam at Kikuyu, Dodoma, was examined. Four samples were examined in connection with the Morogoro water-supply, and two for the new Lindi supply. The corrosion of a water meter was enquired into, and two samples of proprietary white-wash analysed.

CUSTOMS DEPARTMENT.

One sample of "agricultural chemical" was examined, two samples of methylated spirit, two samples of pills for prohibited drugs, and the alcoholic strength of one beverage determined.

VETERINARY DEPARTMENT.

Two hundred and ninety-eight samples of milk were analysed in connection with breeding experiments, and one sample of ghee and two of milks were reported on.

CENTRAL TENDER BOARD.

Towards the end of the year it was decided that the samples of ghee submitted to the Central Tender Board should be examined. Five samples were analysed and all were found to be genuine.

ZANZIBAR GOVERNMENT.

During the Zanzibar Government Chemist's absence on leave it was arranged that any urgent chemico-legal work should be sent to the Dar es Salaam laboratory. Three specimens of internal organs were received, one containing alcohol and bismuth, a second bismuth only, and the third was negative.

MISCELLANEOUS SAMPLES.

The organs of a fowl suspected of having been poisoned contained half a grain of arsenic. A complete analysis of the mineral matter in the Dar es Salaam tap water was carried out in connection with a proposed new brewery. A deposit analysed for the Mines Department contained 26 per cent. of epsom salts. One soil was analysed. Three samples of water, two of salt, three of milk, one of ghee and three of xylol were examined.

W. WHITLEY,
Analytical Chemist.

APPENDIX I.

Dar es Salaam Malaria Routine-Microscopic Findings 1931-1932.

Year	Total Slides examined	Number positive	Percentage positive	Total European Slides	Number European positive	Percentage European positive	European + as % of all +	European + as % of all slides	Rainfall March of May (inches)
1932 ...	6,558	1,502	23	768	134	17	8	2	25.78
1931 ...	8,490	2,540	29	1,008	335	33	13	4	22.15
1930 ...	7,965	2,469	31	1,005	300	30	11	4	22.10
1929 ...	2,306	646	27	603	167	27	26	7	23.24
1928 ...	1,388	429	30	740	237	32	55	17	25.20
1927 ...	2,222	438	20	690	148	21	34	6	20.40
1926 ...	1,799	427	23	756	153	21	35	8	12.50
1925 ...	4,048	967	24	759	130	17	13	3	8.68
1924 ...	3,904	1,063	25	602	155	25	14	4	16.52
1923 ...	3,128	784	24	428	115	37	15	3	13.11
1922 ...	1,585	497	31	375	145	37	30	8	20.70
1921 ...	1,139	414	36	473	181	38	44	15	23.83

APPENDIX III.
Bacteriological Analysis of Dar es Salaam Water Supply.

Date				Main well, Gerezani				Laboratory tap			
				Volume examined in ccs.				Volume examined in ccs.			
				25	10	1.0	0.1	25	10	1.0	0.1
9th August	...	...	...	—	—	—	—	AR	AR	—	—
15	„	...	...	—	—	—	—	AR	—	—	—
22	„	...	...	—	—	—	—	AR	—	—	—
29	„	...	...	AR	—	—	—	—	—	—	—
5th September	...	...	...	—	—	—	—	—	—	—	—
12	„	...	...	—	—	—	—	—	—	—	—
19	„	...	...	—	—	—	—	AR	AR	—	—
20	„	...	...	—	—	—	—	—	—	—	—
3rd October	...	...	...	—	—	—	—	—	—	—	—
10	„	...	...	AL	—	—	—	—	—	—	—
17	„	...	...	—	—	—	—	AL	AL	—	—
24	„	...	...	—	—	—	—	AR	—	—	—
31	„	...	...	PY	PY	—	—	AR	AR	—	—
7th November	...	...	...	AR	AR	—	—	AR	AR	—	—
14	„	...	...	—	—	—	—	—	—	—	—
21	„	...	...	AR	—	—	—	AR	—	—	—
28	„	...	...	AR	—	—	—	AR	—	—	—
5th December	...	...	...	PA	PA	—	—	PA	PA	—	—
12	„	...	...	AR	—	—	—	AR	—	—	—
19	„	...	...	AR	—	—	—	AR	—	—	—

AR = Organisms of the Aerobacter group isolated

AL = „ „ „ Alcaligenes „ „

PA = „ „ „ Paracolon „ „

PY = „ „ „ Pyocyaneus „ „

— = No organisms of the Colon-Aerogenes group isolated.

APPENDIX IV.

Katathermometer Readings, Dar es Salaam 1932.

Taken at 9 a.m. in Laboratory.

Months		Date.	Highest Air Kata. Temp. °C.	Date.	Lower Air Kata. Temp. °C.	Mean Kata.	Mean Air Temp. °C.	Rainfall in inches
January	...	14	8.7	4	6.4	7.6	30	2.4
February	...	5	11.2	1	7.0	8.3	30	4.8
March	...	11	9.3	14	6.1	7.8	28	5.6
April	...	20	8.9	12	6.1	7.5	27.9	13.3
May	...	9	10.2	14	7.1	8.1	26	6.7
June	...	24	12.8	7	7.4	8.6	25	1.6
July	...	24	11.4	22	7.1	9.0	24	0.7
August	...	3	11.3	27	7.5	8.9	24.8	0.4
September	...	20	10.5	8	7.0	8.5	24	1.4
October	...	11	10.5	27	6.8	8.0	26.5	0.08
November	...	10	11.8	28	6.1	7.7	28.3	0.29
December	...	30	9.4	31	3.8	7.1	32.5	6.8

APPENDIX V.

Summary of Examinations.

Parasitological	...	...	...	8,112
Serological	...	...	...	806
Bacteriological	...	...	...	3,194
Pathological	...	...	...	257
General	...	...	...	484
Medico-legal	...	...	...	44
Public Health	...	...	...	3,094
Chemical	...	...	...	663
Miscellaneous	...	...	...	208
GRAND TOTAL				16,862
TOTAL 1931				15,108

H. J. O'D. BURKE-GAFFNEY,

Acting Deputy Director of Laboratory Service.

31st January, 1933.

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